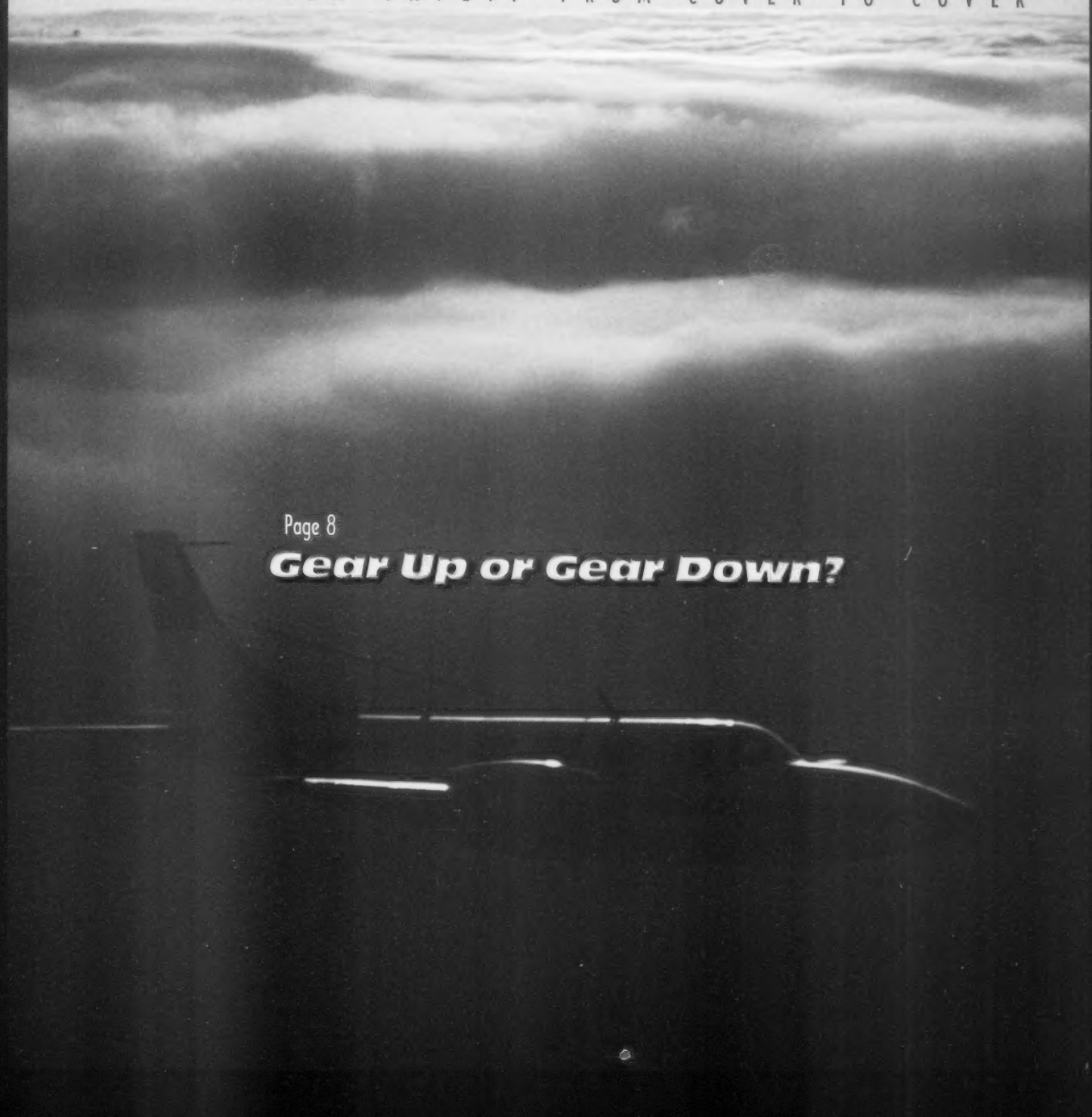
# FAA Aviation news

MAY / JUNE 2000

AVIATION SAFETY FROM COVER TO COVER



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## Gear Up or Gear Down?

U.S. Department
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MAY/JUNE 2000

# FAA Aviation news

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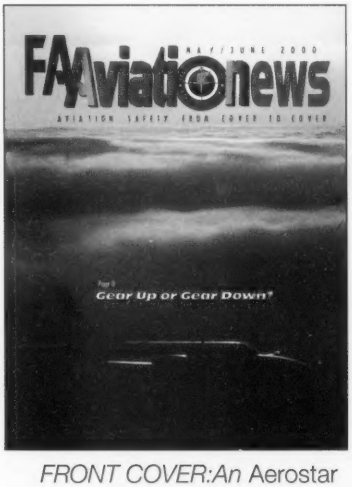


*FRONT COVER:An* Aerostar *601B with the gear up. (Piper Aircraft photo)*

*BACK COVER: And a Piper* Seneca *with the gear down. (G.S. Livack photo)*

# An old teacher learns new tricks

by Greg Brown

## TRANSFER OF LEARNING

"Remember what we did last lesson?"

"Huh?"

"Last lesson? Remember?"

"Huh?"

In preparing for the Fundamentals of Instruction Knowledge Test, every CFI who's reading this has studied the "Law of Primacy." As you remember, that particular law of learning says that the first method or knowledge taught to a student for a given situation is the one student will most likely remember.

What's more, replacing the first way someone learns to do something with new knowledge is difficult, which is why it's hard to teach new methods to people who originally learned something different. That's why it's important to transfer the "right" information the first time. Instill the wrong stuff at the beginning and your student may never get straightened out.

Until recently I'd always viewed the Rule of Primacy as applying primarily to student training. As a practicing flight instructor, I never thought I, too, might be a victim of this principle. Not long ago I learned that traditional teaching methods leave a lot to be desired, so now I'm scrambling to redefine my teaching methods so I can better educate my students. Man, that old Law of Primacy is fighting me all the way, but if I can improve my teaching I'm dedicated to winning the battle.

My awakening began in April 1998 at the first annual International Flight Instructor Conference, which is sponsored by NAFI and Embry-Riddle Aeronautical University (ERAU). There I attended a seminar given by ERAU Professor Dr. Mike Wiggins. Mike blew the doors off this group of experienced CFI's by sharing fundamental facts about how people learn and, therefore, how we should teach. It was an eye-opener!

Before going further it's worth noting that not everyone in the room was affected as strongly as I was. Many of the principles Mike teaches are well-known by professional educators, and I'd always thought that we instructors were part of that group. But school teachers receive a great deal of formal education in principles of teaching, and a CFI's education leans almost exclusively toward the technical details of aviation.

For most CFI's, formal training in how to teach boils down to memorizing a few rote answers so they can pass the Fundamentals of Instruction Knowledge Test and get on with the "important stuff" on the main Flight Instructor Knowledge Test. Any additional teaching skills are picked up from their own instructors, spiked over time with a healthy course in the school of hard knocks. I guess it shouldn't be a surprise that neat stuff from the art and science of teaching never reaches most of us. Just to whet your appetite, let me share a few fascinating insights this 20-year flight instructor learned at Dr. Wiggins's seminar.

A key concept in Mike's work is the transfer of learning—meaning how well we instructors deliver what we know to the mind of our student. Like computers, our brains incorporate two kinds of memory: short-term "working memory" (like RAM on your PC) and long-term memory for permanently recording information (call it the hard drive).

Information entering the brain arrives first in short-term memory for processing. There, if everything is working correctly, transient stuff—like the radio frequency just assigned—is processed and discarded. Information to be stored for future recovery—like input from a

flight instructor—is identified and transferred to long-term memory.

Mentally immerse yourself for a moment in the cockpit during a recent lesson; conjure up the drone of the engine and interject some radio interruptions. Your student is under the hood and sweating through an IFR approach. As the CFI, you're coaching, cajoling, informing, reminding, challenging, and sharing the finer points of the segments of the approach. How much will your student absorb? Will he[she] remember what you've taught him[her]? And if so, how much?

Interesting transfer-of-learning fact number one: A person can retain only five to nine bits of information in short-term memory at a time. If we instructors share more than a small number of facts in short order, the student dumps information overboard without absorbing it. What's more, information coming from the radio, flight controls, and instruments competes for those same five-to-nine slots. With this incoming information overload, before sharing a salient point with the student we might want to take the controls to free up a few information slots.

For students to remember what we're teaching them, their brains must transfer the information that reaches their short-term memory to their long-term memory. It sounds simple enough—until you learn that it takes five to 10 seconds for the brain to process a block of information from short-term memory and install it into long-term memory. If we want our students to remember an important point, we should give them five to 10 seconds of silence before sharing the next one.

"One-one-thousandth, two-one-thousandths, three-one-thousandths, four-one-thousandths, five-one-thousandths, six-one-thousandths, seven-one-thousandths, eight-one-thousandths, nine-one-thousandths, ten-one-thousandths..."

If we deliver information any faster than that, heck—they won't remember. And, if we deny students the necessary processing time, they can permanently lose the information in as little as 15 seconds!

It's easy to see that if the busy cockpit described a few lines back sported as much rapid-fire instruction as it sounds, all the CFI's hard work resulted in very little retained learning in his[her] student.

So now we know that if our students are to learn the material, we instructors know that we should share no more than a few educational nuggets in short order, and we should give them five to 10 seconds of silence before contributing more information.

Until now we've addressed the transfer of individual bits of information to our students. Let's back up and look at the bigger picture. Based on preliminary research, it appears that students can absorb only one or maybe two major learning experiences per lesson. "Hold on," you say, "If I teach only one major topic per lesson we can't meet the syllabus!"

"Could be," says Mike. "But try to teach more than that in one lesson and you'll just have to do it again next time."

Even limiting a lesson to one or two major topics doesn't ensure that students will learn everything. Ultimately, teachers must share important points approximately eight times in order for students to properly absorb, understand, and retain them.

That doesn't mean you repeat each point eight times in a row. Rather, instructors should revisit the material in a variety of ways, including verbal explanation, visual presentation, interactive discussion, and, when possible, applied logical reasoning. The greater the interval between topic reinforcement, the less effective the learning. It's best to revisit key points several times in the first session or two, with further repetition soon thereafter.

At his seminar, Mike demonstrated these principles to help us remember them. He listed the key points to remember, quizzed us on them, and then listed them again. Then he asked us to write down the ones we remembered, assembled us in groups to share and discuss the ones we remembered, and assigned group members to divide responsibility for remembering them. Finally, Mike asked each group to report on how it was all accomplished. It works! That's why I remember much of the stuff I learned from him way back in April 1998.

How do we apply this new understanding to enhance student learning? Good lesson planning helps; organize each session around one or two major learning objectives. Share input and advice in bite-sized chunks, with silence between important points so students have time to transfer the information from their short-term to long-term memory. Reinforce important concepts through repetition using a variety of teaching methods.

It's also important to focus on key learning elements with little deviation. Don't try to teach everything you know about a given subject to your student. As instructors we draw from a large pool of experience and knowledge. Undoubtedly, part of the fun of teaching is sharing it, but it should be clear that delivering too much information in short order defeats our teaching objectives. It's better to transfer core knowledge thoroughly and effectively, and let nice-to-know-but-not-really-necessary stuff wait for another time.

Back to my Law of Primacy challenge. Now that I've learned just a few simple techniques for improving the transfer of learning between me and my students, I cannot believe how challenging it is for me to change my ways. How challenging it is for me to formulate and simplify what I want to say ahead of time, to express only relevant information, and, hardest of all, to keep my mouth shut between important points.

But it's worth it. While still refining my methods, I can already see results. Congratulations and many thanks to people like Mike Wiggins for challenging the Law of Primacy and sharing exciting new tools and insights for teaching. It takes me back to the wonderful kick as a student of overcoming old habits to grasp a better method, and thereby nailing the sweet spot on the ol' ILS. That's what makes flying so interesting—always learning better ways and new tricks.

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*This article is reprinted with permission from the NAFI Mentor.*

# An Unconscious Landing

by Douglas R. Burnett

*Dr. Frayser's plane glided to a "safe" landing on a Missouri farm after running out of fuel.*

*Pilots love to describe their great landings, some of which are characterized (usually by others) as "unconscious." However, to land while being unconscious, yet able to describe it is an entirely different matter. Ordinarily, a pilot's in-flight incapacitation brings about tragic consequences. —Federal Air Surgeon's Medical Bulletin Editor*

On the afternoon of March 1, 1999, we were enjoying an exceptionally good Basic AME (aviation medical examiner) seminar. Dr. Allen Parmet, presenting aviation physiology, had started to tell the remarkable story of a pilot who lost consciousness while flying alone and woke up in a hay field. Before Dr. Parmet could finish, a voice from the back of the room exclaimed, "I was that pilot!"

Dr. Robert Frayser, from Hoisington, KS, who was attending his first AME seminar, took over telling this incredible, real-life incident that had happened to him just over a year ago in central Missouri. He had left his home airport at 7 a.m. enroute for Topeka, KS. "I was flying alone in my *Comanche 400*, cruising at 5,500 feet on autopilot, with the sun coming up on a clear, beautiful day." All was routine flying activity as he switched the fuel selector to the auxiliary tank and set up the navigation system for his destination.

After that, it was anything, but routine. "Then, I lost about an hour and a half of my life." The plane, trimmed for cruise flight and on autopilot, flew a perfectly straight course over Kansas until it ran out of fuel and glided to a landing near Cairo, MO. When he awoke, confused, disoriented, and groggy from a deep sleep, he thought he was still in the air and went through landing preparations. As he became more oriented to his surroundings, he realized that he was now on the ground—in a hayfield. The engine was silent. The airplane's right wing was nearly torn off from an impact with a small tree, but the plane was otherwise intact. Aside from some minor cuts and bruises, he seemed to be relatively uninjured. Frayser says he had no memory of landing.

Since the engine had stopped, no one heard the aircraft as it landed on the open field. "I was alone, disoriented, injured, and had a severe headache and ringing in my ears," he said.

Extracting himself from the aircraft, he struggled a quarter of a mile through snow-covered fields for help, finally finding a farmhouse. Still dazed, he says, "I tried to explain to the farmer what had happened," adding, "he probably thought I was crazy." Fortunately, the farmer called for help. Frayser was taken by ambulance to a local hospital, where the emergency room physician put him on 100 percent oxygen. He had a few cuts and bruises, sore ribs, and a fractured left wrist.

What had caused him to fall asleep? It wasn't an "alien encounter" or an unsolvable mystery. It was carbon monoxide poisoning from a cracked manifold that had allowed the deadly, nonirritating, odorless, colorless gas to seep into the cabin through the heater. The crack, which had apparently opened after the last annual inspection, was concealed by the heat shield and could not be detected during the pre-flight inspection. "The crack could have been there for a long time, just waiting for someone to turn on the heater," he said.

Frayser did not have a carbon monoxide detector aboard to alert him. He stated that there were no early warnings or symptoms to alert him. "I just went to sleep."

Was it luck that he survived? Of course, luck had a lot to do with it. Just a few feet shorter and his "runway" would have been a plowed field. Had his glide angle been a little lower, he would have hit power lines. A slight wind gust could have changed the outcome dramatically. With more fuel on board, he could have flown another 30 minutes in the air and he probably would have succumbed to carbon monoxide poisoning before the plane ever crashed.

However, two things he did correctly probably saved his life. First, he had good equipment that kept the plane stabile until it landed. Second, Frayser says he had quit smoking six months earlier; that factor gave him a probable life-saving margin of an additional eight percent on his oxygen-hemoglobin dissociation curve. His carboxyhemoglobin (CoHg)level was estimated at 44 percent when he exited the plane, and it was still at 36 percent when he arrived at the hospital. Loss of consciousness has occurred in other aviation cases at 40% CoHg levels. Higher levels often cause death.

The Piper *Comanche*, which Frayser says was "very special" to him, was removed from the field on a flatbed truck and taken to an aircraft salvage yard. After the accident, 20 aircraft from the same airfield were inspected and three were found to have cracked manifolds—and only two had CO detectors.

Frayser says he now has a new *Comanche 400*, identical to the old one, "except it is blue instead of red—and, I now fly with a good carbon monoxide detector in the cockpit."

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*Douglas Burnett is CAMI's Aviation Medical Examiner Program team manager. This article originally appeared in the Spring 1999 issue of* The Federal Air Surgeon's Medical Bulletin.

*A Missouri hayfield provided a relatively soft landing spot for Frayser.*

# CALENDAR OF EVENTS

**July 8-9, HAGERSTOWN FLY-IN-DRIVE-IN AND YOUNG EAGLES DAY, Hagerstown, MD**

For food, fellowship, understanding plane maintenance, and just plane fun at Hagerstown Regional Airport-Richard Henson Field (HGR). Also free first flights will be available to youths ages seven to seventeen with parental permission. For information contact Gary Hartle at (717) 597-9328 or June Green at (301) 739-0074.

**July 8, 23rd ANNUAL NEVADA COUNTY AIRFEST 2000, Grass Valley, CA**

Help promote public awareness of Nevada County Airport and an enjoyment of general aviation. For more information contact Tim O'Brien at (530) 273-1972 or email <tobrien@lilttonengr.com> or visit their website at <www.airfest.bizland.com/>.

**September 10-13, CVE-116 REUNION, Las Vegas, NV**

The former members and air groups of the USS BADOENG STRAIT (CVE-116) will hold their eighth reunion. For more details contact Henry Trotter, 106 Sage Dr., Universal City, TX 78148 or phone (210) 658-3447.

**September 16-17, 23rd ANNUAL FLY-IN-DRIVE-IN, Berkley Springs, WV**

For food, fellowship, understanding plane maintenance, and just plane fun at Potomac Airpark (W35). Also free first flights will be available to youths ages seven to eighteen with parental permission. For information contact Dean Truax at (717) 294-3221 or June Green at (301) 739-0074.

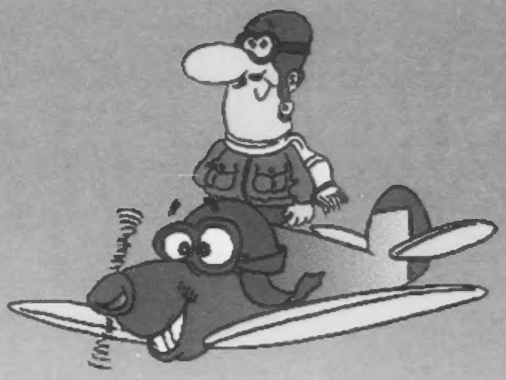
**October 20-22, AOPA EXPO 2000, Long Beach, CA**

AOPA's annual convention will be held at the Long Beach Convention and Entertainment Center. For more information call (301) 695-2162.

**October 25-28, UNIVERSITY AVIATION ASSOCIATION FALL EDUCATION CONFERENCE, Phoenix, AZ**

The conference will be held at the Mesa Pavilion Hilton for collegiate institutions offering aviation programs along with government and aviation industry organizations with an interest in aviation education. For information contact Charlotte DeWeese at (334) 844-2434.

# Safety First



# Going Around

by Patricia Mattison

As a student pilot, longer ago than I care to talk about, one of the first things I was told, was, if an approach to a landing didn't look good, simply "go around" and try again.

During my career as a flight instructor I endeavored to imbue in my students the value of a "go around." Knock on wood, none of my students have, to my knowledge, landed long and wrecked an airplane. I owned and operated a flight school at a small field in California, and the most fun you could ever want to have was watching weekend pilots take off and land at that field. On weekends, when we had a spare moment, we would take our lawn chairs out to a shady spot beside a hangar and let the spectator sport begin.

This airport was, and still is, famous for wind that encourages pilots to dig out their cross wind landing technique. Wind generated from the desert increases in speed as it approaches the airport. Two hills near the west end of the airport cause the wind speed to increase even more because of a venturi effect.

One Saturday in particular, a small homebuilt took to the runway for a turn in the traffic pattern. This airplane, if that's what you want to call it, was hauled to the airport every weekend on a small flat bed trailer. The pilot put the wings on with a couple of bolts and then squeeze into the cockpit. The wing span was a total of about twelve feet and the open cockpit was barely large enough for a person to sit in. The "windscreen"—if it could loosely be called that—came to the pilot's waist. The pilot rose above the fuselage, into free air, at least three feet, bringing to mind Gulliver amongst the Liliputians.

The pilot took off quite successfully and flew into the traffic pattern of a runway that was 3,000 feet long. Approaching for a landing with a cross wind, we could see that he was going to land about half way down the runway. Now granted this is a very small aircraft and it should have been able to land and stop in a very small space. (I don't think that the approach speed was greater that 35 or 40 miles per hour.) However, no such luck prevailed.

The pilot gunned the small plane's engine, and I thought he was going to go around for another try. Then he reduced power and started down again about three quarters of the way down the runway. OK, so he still could make a landing—maybe. The pilot gave the little plane power again and we all thought that he would go around for sure this time.

Nope, he didn't make it. The next thing we all knew was that the airplane was caught up at the end of the runway in a fence about three feet tall.

The pilot was not hurt, because the tail was held suspended in the fence, but he was sure red in the face. The airplane was righted by a few helpful folks and the pilot taxied off to try again another day.

Some of us have all been in this pilot's shoes at one time or another. We might take a chance on making a long, maybe too long, landing rather than face the imagined disgrace and embarrassment of the dreaded go around. One pilot I know of ended up with the nose of his airplane nestled in a chain link fence. His excuse was that he felt that the controllers at that airport were too busy to handle a go around. Some excuse, huh!

I have been in airlines that have opted to use their go around procedure when approaching an airport and ending up too high on the approach. I suppose that they had to answer to their boss, but I am here to tell you that I would rather that they had gone around and made a safe landing.

Trust your instincts and rely on your pilot training and go around, if necessary. It could save you some real embarrassment and maybe save your life too.

*Patricia Mattison is the Safety Program Manager at the Juneau (AK) Flight Standards District Office.*

# The Epidemic of Obesity

by Glenn R. Stoutt, Jr., M.D.

The epidemic of obesity is now a crisis. It is one of the major public health problems in the country. About 300,000 deaths yearly are a result of complications of obesity; second only to smoking, which causes about 420,000 deaths yearly.

Medical problems associated with obesity include heart attack, stroke, gout, diabetes, gallbladder disease, arthritis of weight-bearing joints, depression, fatigue, breast and uterine cancer, hypertension, and increased risk of falls and accidents. Add to this decreased self-esteem, less success in the workplace, and even public scorn and ridicule for gross obesity. Pilots may not be able to fit into the cockpit. There is no definite FAA regulation about obesity, but this is left to the AME to determine if obesity is a factor in safe operation of the aircraft.

Many articles use the Body Mass Index (BMI) to identify obesity. There are several ways to measure lean body mass. The only accurate way to define obesity is to measure actual body fat content by immersing the entire body in a tank of water and then making mathematically calculated measurements. This is scientifically correct, but certainly not practical. A Body Mass Index (BMI) over 27 may indicate that one is overweight; if it is over 30, one is probably obese; a BMI of 25 is normal. Under 18 is abnormal. One problem with the BMI is that muscular people (muscle weighs much more than fat) might have a falsely high BMI. All lean, muscular contestants in a physique contest would have an abnormally high BMI.

The real value of the BMI is to compare population weights over the years. Records of our weights and heights from past decades are readily available from insurance companies and hundreds of other sources. In 1960, 10 percent of our population was considered overweight; that figure has now reached over 32 percent. We are the fattest nation in the world. Forty percent of obesity is genetic (but still responds to diet and exercise). As a population, we are fat—and getting fatter—not from a sudden appearance of a "fat gene," but because we eat huge portions of calorie-laden fast foods, snack constantly, and get junk food from vending machines and just about every store we enter. We drive cars instead of walking or biking. We are couch potatoes.

Bookstores are filled with best-selling books on weight reduction. Some are "junk science" moneymakers, others have a gimmick that is blown up to about 300 pages and $25.

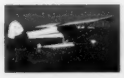
The food pyramid diagram by the U.S. Department of Health and Human Services, may be the most valuable one source of nutritional information ever devised. It contains most of the information you will ever need to know about your diet. It emphasizes food from five food groups. Note that—contrary to what we were taught years ago—complex carbohydrates should make up over 50% to 60% of our diet.

This is not junk science. Every major health organization endorses the food pyramid. Our basic diet should be about 15 percent protein, 20-30 percent fat (mostly unsaturated), and 55-60 percent carbohydrates (mostly complex carbohydrates). The popular diet books merely juggle the food percentages instead of just lowering calories by shrinking the pyramid and keeping the proportions the same. Some of the books recommend dangerously high proportions of fat and high protein. Anyone will lose weight on these diets, or on just about any diet, if followed long enough. Even if you eat half a stick of butter and two hamburger patties for each meal you will lose weight. But you will have way too much fat in your diet and go into a state of ketosis—also dangerous for your body. No one ever got into poor health by lack of sugar. The bottom line is to use the proportions recommended by the food pyramid and forget all the hype. And exercise, exercise, exercise! Even walking 30 minutes every day will do wonders.

Here are the food groups, with some choices for World Cup Champion in each category:

- Bread, Cereal, Rice, and Pasta (the mainstay of your diet): Bread (especially whole-grain breads), oats, rice (brown rice is best), macaroni, spaghetti. Try unsweetened whole-grain breakfast cereals and add a little artificial sweetener.
- Vegetables: The winners are Irish potato, sweet potato, broccoli, spinach, carrots, squash, cauliflower, and green peas.
- Fruits: Apples, oranges, grapefruit, bananas, watermelon, apricot, prunes. (Consider vegetables and fruits in the same category nutritionally.)
- Milk, Yogurt, Cheese: Best are skim milk, no-fat yogurt, and low- or no-fat cottage cheese.
- Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts: Lean meat, about the size of a credit card and about as thick as your finger,





once a day; turkey is a good choice. Beans: lima, kidney, Navy, black, pinto, and black-eyed peas. Three or four eggs a week. Most nuts if they are unsalted. Salmon, cod, halibut, and tuna are excellent fish selections.

- Fats, Oils, and Sweets: Bad news. Use sparingly. (Salt, sugar, and fats are the worst things you can eat.) The best oils are olive oil and peanut oil, followed by corn, safflower, soybean, and sunflower. Skip any saturated oils or fats.

Thousands of articles and books have been written about obesity and diets. The truth is that weight control is a simple matter of mathematics. There must be a balance between energy expended (metabolism and exercise) and energy consumed in the diet. Any remaining calories (energy) not used are stored as fat. The laws of thermodynamics cannot be changed.

Yours for good health and safe flying,

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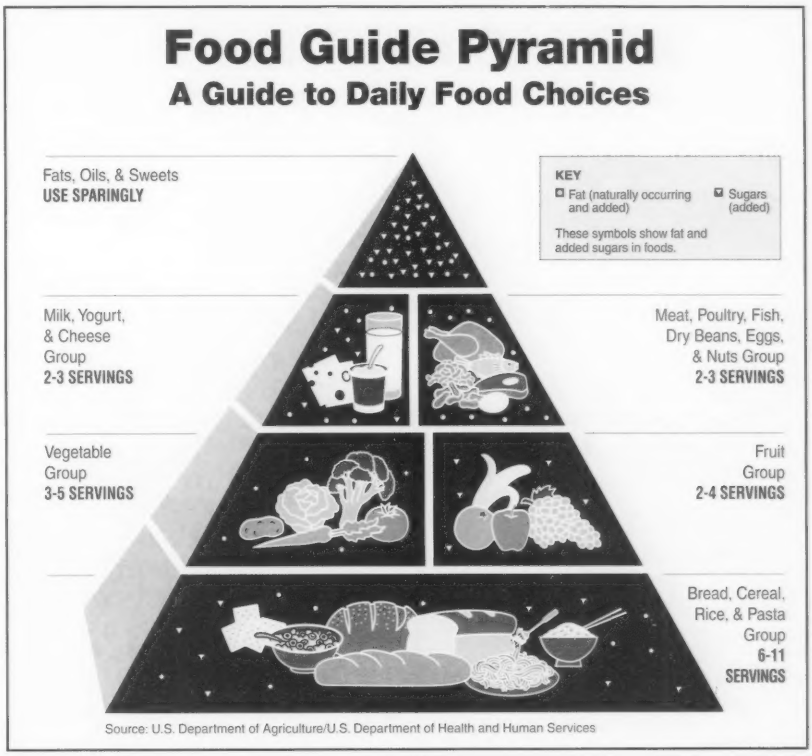
*Dr. Stoutt is a partner in the Springs Pediatrics and Aviation Medicine Clinic, Louisville, Ky., and he has been an active AME since 1960. No longer an active pilot, he once held a commercial pilot's license with instrument, multiengine, and CFI ratings.*

*Note: The views and recommendations made in this article are those of the author and not necessarily those of the Federal Aviation Administration. This article originally appeared in the fall 1999 issue of the* Federal Air Surgeon's Medical Bulletin.


Food Guide Pyramid
A Guide to Daily Food Choices
Fats, Oils, & Sweets
USE SPARINGLY
KEY
Fat (naturally occurring and added)
Sugars (added)
These symbols show fat and added sugars in foods.
Milk, Yogurt, & Cheese Group
2-3 SERVINGS
Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
2-3 SERVINGS
Vegetable Group
3-5 SERVINGS
Fruit Group
2-4 SERVINGS
Bread, Cereal, Rice, & Pasta Group
6-11 SERVINGS
Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services

**Body Mass Index — Height (ft., in.)**

| WEIGHT | 4'10" | 5'0" | 5'2" | 5'4" | 5'6" | 5'8" | 5'10" | 6'0" | 6'2" |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 26 | 24 | 23 | 22 | 20 | 19 | 18 | 17 | 16 |
| 130 | 27 | 25 | 24 | 22 | 21 | 20 | 19 | 18 | 17 |
| 135 | 28 | 26 | 25 | 23 | 22 | 21 | 19 | 18 | 17 |
| 140 | 29 | 27 | 26 | 24 | 23 | 21 | 20 | 19 | 18 |
| 145 | 30 | 28 | 27 | 25 | 23 | 22 | 21 | 20 | 19 |
| 150 | 31 | 29 | 27 | 26 | 24 | 23 | 22 | 20 | 19 |
| 155 | 32 | 30 | 28 | 27 | 25 | 24 | 22 | 21 | 20 |
| 160 | 34 | 31 | 29 | 28 | 26 | 24 | 23 | 22 | 21 |
| 165 | 35 | 32 | 30 | 28 | 27 | 25 | 24 | 22 | 21 |
| 170 | 36 | 33 | 31 | 29 | 28 | 26 | 24 | 23 | 22 |
| 175 | 37 | 34 | 32 | 30 | 28 | 27 | 25 | 24 | 23 |
| 180 | 38 | 35 | 33 | 31 | 29 | 27 | 26 | 25 | 23 |
| 185 | 39 | 36 | 34 | 32 | 30 | 28 | 27 | 26 | 24 |
| 190 | 40 | 37 | 35 | 33 | 31 | 29 | 27 | 27 | 24 |
| 195 | 41 | 38 | 36 | 34 | 32 | 30 | 28 | 27 | 25 |
| 200 | 42 | 39 | 37 | 34 | 32 | 30 | 29 | 28 | 26 |
| 205 | 43 | 40 | 38 | 35 | 33 | 31 | 29 | 29 | 26 |
| 210 | 44 | 41 | 38 | 36 | 34 | 32 | 30 | 29 | 27 |
| 215 | 45 | 42 | 39 | 37 | 35 | 33 | 31 | 30 | 28 |
| 220 | 46 | 43 | 40 | 38 | 36 | 34 | 32 | 31 | 28 |
| 225 | 47 | 44 | 41 | 39 | 36 | 34 | 32 | 31 | 29 |
| 230 | 48 | 45 | 42 | 40 | 37 | 35 | 33 | 31 | 30 |

G. S. Livack photo

# Gear Up or Gear Down?

by Harry Kraemer

Man's earliest airplanes used skids as landing gear. It wasn't long before wheels were attached to the skids. Since that time, there have been various airplane designs with great progress and attention given to the landing gear. One improvement was the invention of retractable landing gear, which was a result of man's quest for more speed. However, with the invention of retractable landing gear, came mechanical problems in extending the landing gear.

The gear handle is placed in the down position. One green. Two green. Two green was it! What now? The pilots is now faced with many decisions, when one (or more) gear(s) doesn't extend. Land gear up? Land on the runway or grass? Foam? These are just a few of the considerations pilots are faced with when a gear problem arises.

Not much has been written on this topic. One reason may be that it is hard to test any theory or recommendations. Who wants to land a plane gear-up or partial gear up to test a theory? My research led me to the FAA, NTSB, and NASA's Aviation Safety Reporting System (ASRS) in an attempt to find out more about this problem.

One thing that a pilot can do is to try to prevent problems (specifically, extending the gear). A good percentage of aircraft landing gears are operated electrically. Hydraulics is usually involved also. When an electric mechanism is involved, any sign of an alternator or generator (as indicated by a gauge or other source) problem may lead to a gear extension problem. Loosing an alternator or generator means that your only electrical supply comes from the battery. It will only be a matter of time before battery power is depleted. I have reviewed the one hundred most recent reports involving gear up incidents (from NASA's data base) and a large number of those were attributed to an alternator or generator failure that the pilot did not notice until it was time to extend the gear. By this time, the battery was also drained. Your scan should include the entire panel. At the first sign of an electrical problem (loss of an alternator or generator), your focus should be to trouble shoot or determine the cause. If it can not be corrected in a relatively short time and your gear system relies

on electrical power, you may want to drop the gear while you still have power left in the battery. Having your pilot operating handbook (POH) and/or the emergency checklist handy is a good reference during a time like this.

This is another reason not to cut it too close on fuel. A gear problem at the end of a long trip with minimum fuel has the potential for major problems. You may be carrying enough fuel as required by the Federal Aviation Regulations (FAR). However, this may not be enough to trouble shoot a gear problem. Low fuel or minimum fuel can add more stress to your situation. Worried about running out of fuel, you may have decided to land gear up. Then, after all of the excitement, you have time to look at the POH and find that your gear extension problem had a simple fix that could have been solved in the air—if you would have had more time (and more fuel).

If you discover the gear problem in the pattern, depart the pattern and climb to a safe altitude. Use the autopilot (if installed) this can be especially useful if you are by yourself. Read the POH and the emergency checklist. Take your time. Follow all checklists. Call for help on the ground. Talk to a mechanic, another pilot, or a flight instructor who is familiar with the type aircraft you are flying. You may even be able to talk to the manufacturer for assistance. This is where having a lot of fuel helps.

Know the proper emergency extension procedures for your aircraft. Some aircraft have a "one shot" emergency system. Quite a few pilots have wasted this "one shot" because they didn't have the handle or switch in the "down position" and it was required to be there for the system to work. If you are or have been in freezing conditions, the gear may be frozen up. It may just be a matter of time waiting for it to thaw-out. Sometimes pulling a few G's (stay within the limits of the aircraft) may extend the gear. If you are flying with another pilot or you are part of a two-man crew, one pilot should fly the airplane while the other works on the problem. Always monitor your fuel. If you left the pattern to work on a gear problem and fuel gets low, you will have to land.

There may be times when nothing works. All three are stuck up, or only one or two are extended. It could be that they all are partially extended. Most POH's do not prescribe procedures for this. You are on your own! Decision time! Land all gear up? Leave down what will come down? Etc.

It is hard to say whether you should always land gear up or not. The pilot in command (PIC) will have to look at his or her own situation and consider all factors. The PIC has the final authority. Do not do something that you are uncomfortable with, regardless of recommendations from help on the ground. An extended or partially extended gear will definitely have a protective effect on the cockpit and cabin area. If you do decide to land all gear up, land at the minimum speed at which you are comfortable with and at which the aircraft will fly safely. If flying a plane (single or multi-engine) with a two-blade propeller, you can shut down the engine or engines once the runway is made and stop the prop at the horizontal position. This will minimize damage to the engine and also lessens the chance of fire. Dumping fuel or burning off fuel will also lower the chance of fire.

Let's say that only the left main gear didn't extend. You have a choice to land with a left or right crosswind. With no wind, the airplane will tend to turn to the left on the rollout. If you have a choice, land with a right crosswind. The tendency for the plane to weather vane into the wind may help fight the tendency for the plane to turn left. If the aircraft is equipped, aileron trim could be used to keep the left wing up as long as possible after touch down.

Selection of airports is something else to consider. A large, long, wide runway may be preferable over a short, narrow runway. The aircraft may slide off the runway during the rollout. Small airports often park planes along the runway. The gear-up landing may not cause too many problems, however colliding with parked planes could ruin your day. If the problem occurs close to your home airport, you may choose to return there. Most pilots are more comfortable landing at their home airport. This will help to reduce the stress factor and allow you to focus more on flying the plane and dealing with your problem. Availability of emergency equipment is also something to consider. Returning to an airport where you have maintenance personal who are familiar with the aircraft can be a big asset.

The grass next to the runway is not as good as some think. While landing on the grass next to the runway, part of the gear or other parts of the aircraft could catch causing the aircraft to cartwheel. The grass can also cause the aircraft to dig in and stop suddenly (like hitting a brick wall). Landing on a paved runway will allow the aircraft to slide to a stop, only after it has lost momentum.

Another question that often comes up is "to foam or not to foam?" Foam is used as a protection against fire. Foaming the runway may cause the aircraft to slide more or slide out of control changing directions. We know what it is like trying to stop or control a car on ice or snow. The entire runway is not normally foamed. This puts pressure on the pilot to try and land in the foam. In reviewing the one hundred most recent NASA/ASRS reports, not one reported a fire nor did any report mention using foam.

Gear-up landings usually result in very little aircraft damage. In the NASA/ASRS reports (the reports included small general aviation aircraft up to large airliners capable of carrying hundreds of passengers), not one resulted in any injury to any persons. One pilot reported that having a lot of fuel was his biggest asset. This allowed the crew time to think and get assistance from company maintenance personal on the ground. They were able to resolve the problem, extend the gear, and land without incident.

It is difficult to give any hard-fast rules on gear up landings. However, I have provided you with some information that you can store and recall when and if it is ever needed.

# RUNWAY INCURSION CORNER

## What is a runway incursion?

In order for an incident to be classified as a runway incursion, there must be a collision hazard or a loss of separation. According to FAA Order 7210.58, National Runway Safety Program, if an aircraft intending to land is sent around within one mile of the landing threshold due to an aircraft, vehicle, or pedestrian incurring on the runway, that is a runway incursion. If the aircraft on final was a mile or more from the landing threshold, it is classified as a surface incident.

If a departing aircraft has been cleared for takeoff and is rolling down the runway when the takeoff clearance is cancelled, that is a runway incursion. If the takeoff roll has not commenced, it would be a surface incident.

If there is no loss of separation, the key question to be answered is was there a collision hazard.

## What is the FAA doing to prevent runway incursions?

The Runway Safety Program (RSP) is working closely with other government organizations, industry, and other various stakeholders in aggressively pursuing numerous means to prevent or mitigate runway incursion and other surface incidents. These solutions will greatly improve the current level of surface safety for pilots, airport operators, and controllers. The non-technological solutions include:

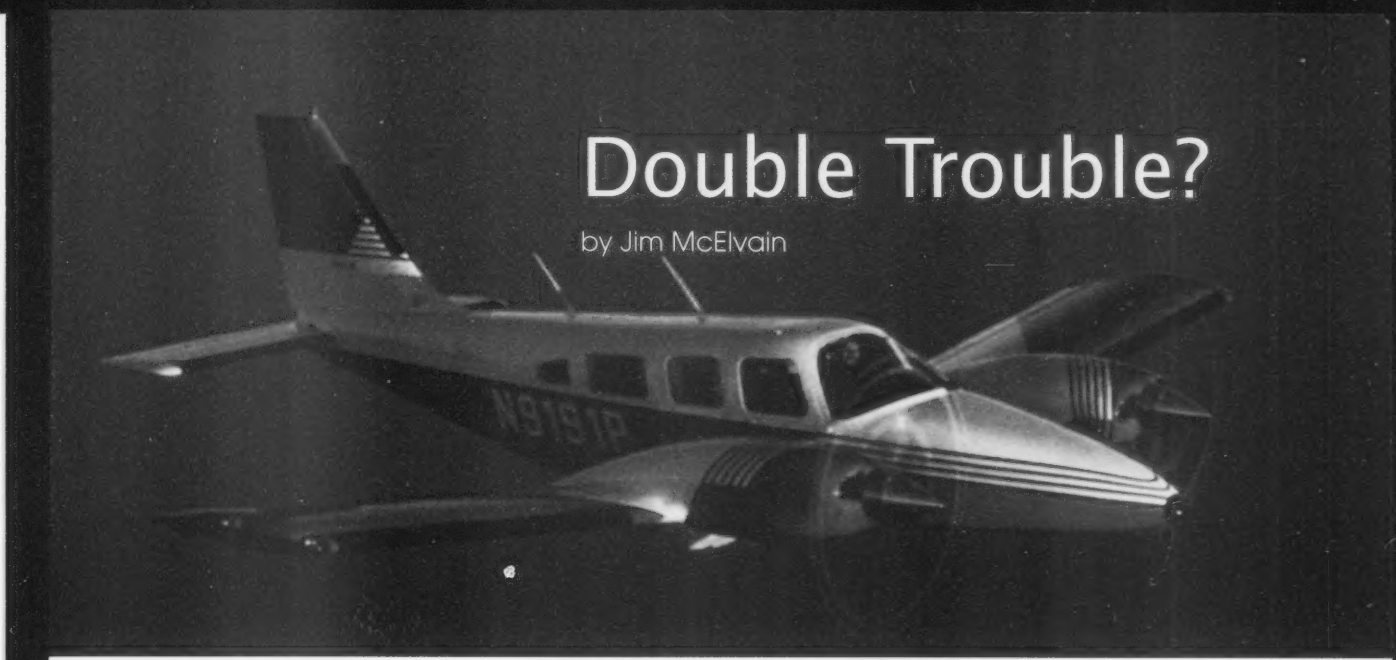
- "NOW" Strategies, which identified immediate actions, were implemented. Some of these initiatives included:
  - Certification Alerts to Airport Operators addressing runway incursion mitigation strategies.
  - Draft joint government/industry standardized cockpit procedures directive.
  - Program to reduce runway crossings by vehicular traffic.
- Runway Incursion Action Team (RIAT) evaluations at 20 airports experiencing an unusually high incidence of runway incursions in FY1999; 25+ in FY2000.
- Heightened awareness through:
  - Joint FAA/AOPA awareness "blitz".
  - Runway incursion (RI) exhibit displayed at major aviation events presenting RI brochures, materials, videos and computer based instruction.
  - RSP Internet website linked to all major aviation websites. <www.faa.gov/ats/ato/ato102>
- The ongoing Commercial Aviation Safety Team (CAST) has recently chartered the Runway Incursion Joint Safety Analysis Team (JSAT) to develop RI intervention strategies.
- Entering final stages, the Investment Analysis (IA) for Airport Surface Movement Enhancement and Runway Incursion Prevention will validate a wide range of technical and non-technical RI mitigation solutions.

Some of the technological solutions include:

- Low cost Airport Surface Detection Equipment (ASDE-X) is a system for airports that do not qualify for the more expensive ASDE-3.
- Airport Movement Area Safety Systems (AMASS), which will provide visual and aural alarm alerts to the controllers,
- Airport Target Identification System (ATIDS) to augment and improve surface surveillance and provide aircraft identification.
- Loop Detection Technology, a prototype system currently undergoing validation, will classify, track, and record aircraft and ground vehicle activity on movement airport areas.
- Data Fusion will provide a target track for input to incursion warning algorithms that provide alerts for impending situations.
- Vehicle Automated Dependent Surveillance-Broadcast (ADS-B), a bi-directional data link system that uses GPS derived position reports, will allow ATC, airline managers and local airport operators track and monitor surface traffic.

## What are Runway Incursion Action Teams?

Runway Incursion Action Teams (RIAT) are an Air Traffic initiative that brings together groups of FAA and industry experts who meet at airports that are having a high number of runway incursions and surface incidents. These airports are identified by the number of runway incursions and surface incidents within the previous 12-month period. The RIAT conducts an on-site evaluation, and then the local FAA and airport team meets monthly until the incursions have been reduced enough for the airport to drop off the "Top 20" list. RIAT have completed evaluations at SAT, SJU, ATL, JFK, FRG, FXE, PBI, and DAB. By the time you receive this issue, RIAT should have evaluated BOS, PVD, MSP, and MDW. From June through August, these airports will be evaluated: MYF, LGB, SNA, RNO, VGT, MIC, FCM, DAY, SEA, BOI, and SFO. +



# Double Trouble?

by Jim McElvain

It's time to revisit the unique characteristics of the light twin engine airplane. Here are two typical accident scenarios involving light twins.

- *During a multi-engine flight check at the Frisco Airport near Frisco, TX, a Piper* Seminole *crashed shortly after takeoff. The aircraft was destroyed, and the pilot examiner was killed. The applicant received serious injuries. Witnesses reported seeing the aircraft in a steep bank just after takeoff.*

- *A British* Beagle *light twin crashed after takeoff from Wilbarger County Airport near Vernon, TX. The aircraft exploded on impact and was destroyed. All three occupants of the aircraft received fatal injuries. Witnesses reported seeing the aircraft flying at low altitude after takeoff. They reported a left turn back towards the airport before the aircraft rolled right and impacted an asphalt road. The area consisted of open wheat fields. Initial investigation revealed that the left prop was feathered, mixtures and throttles were forward, and the gear was down.*

Both accidents resulted in fatalities, which happens in too many cases when an engine is lost shortly after takeoff. Let's look at some "truths" concerning light twins that may help us avoid the "consequences."

They don't have to fly! Certification standards for a light twin that has a gross weight of less than 6,000 lbs. or a $V_{so}$ stall speed of less than 61 knots, do not require the aircraft to climb or maintain altitude on one engine.

The loss of one engine may result in a decrease of 80 to 90 percent of the normal climb performance. Less than perfect flight technique or an aircraft that is not in new condition will consume the other 10 to 20 percent.

If a light twin is flown at $V_{mc}$+5, or any speed below $V_{yse}$, and an engine is lost, you may not be able to maintain altitude and accelerate to $V_{yse}$. An engine loss before 500 feet AGL may mean a descent to the ground while attempting to reach $V_{yse}$. Once below $V_{yse}$ on a single engine landing, a go-around is usually out of the question.

In certain conditions, a non-turbo charged aircraft may stall before reaching $V_{mc}$ when operating single engine. This may result in an uncontrolled roll leading to a spin. Bad news, since twins don't have to be able to, and may not, recover from a spin!

If engine out emergencies are not continually practiced to perfection, the aircraft may fall below $V_{mc}$, stall, rollover, or simply descend into the terrain before the pilot even reacts.

Here are a few rules to help you avoid the consequences associated with mistakes made in light twins.

- Never fly below $V_{mc}$. (Maybe just before touchdown on a short field.)
- A recommended all engine $V_x$ below $V_{mc}$ should only be used in an emergency situation.
- Use the manufacturer's recommended lift off speed or $V_{mc}$+5 knots.
- After leaving the ground, the pilot should consider never climbing slower than $V_{yse}$.
- Be a skeptic when reading performance tables for your Part 23 light twin.

Okay, light twins can be dangerous machines, if you don't become familiar with their emergency procedures. There may be times when your best option is to treat an engine loss like you would in a single. Pitch it over to maintain $V_{yse}$ and land in control. More than anything else, know the limitations of your machine and be competent to operate within those limitations.

✈

*Jim McElvain is the Safety Program Manager at the Fort Worth (TX) Flight Standards District Office. Much of this material came from the Safety Program Pamphlet P-8740-25, "Always Leave Yourself an Out." This originally appeared in the October 1998 issue of The Fort Worth Wings.*

# SAFETY REMINDERS

These items were reported to NASA's Aviation Safety Reporting System (ASRS) and appeared in past issues of *Callback*.

### A Plea for PIREP's

ASRS has received an important reminder from an air traffic controller to pilots everywhere: Pilot Reports (PIREP's) are sometimes the only way that ATC can know about adverse flight-related events that can affect all aircraft:

*On taxi-out, [commuter aircraft] indicated he was involved in a bird strike...ATC was not notified of the bird strike in a timely fashion. It is understood that the flight crew [was] busy at the time of the occurrence. However, due to the time of day (night, after sunset) and distance from field (4 miles) it [was] impossible for ATC to know of the occurrence without a PIREP. With the PIREP we could have warned subsequent inbounds of birds in the area, allowing us to provide better service to the aircraft landing here. Please, help us to help you make your job easier.*

### Controller's Credo —Pilots: Read and Heed

As an air traffic controller my job depends totally on communication. I try diligently to issue safe, effective clearances... I never try to over-control and penalize the users. I try to maintain a safe, efficient, and positively-controlled flow of traffic. This is often not very easy to do. There are entirely too many pilots who don't acknowledge clearances. We must all strive to maintain a vigilant listening watch, give complete readbacks, and use FULL callsigns. I expect use of standard rate turns, descents and climbs. If you need something different, ask for it. Let's all be professionals, communicate, and comply. Give me your best and I promise I'll give you mine.

### A Roast, But No Picnic

FAR § 91.103 requires pilots to familiarize themselves with all available information about their flights. Our next reporter used several means to familiarize himself, but neglected a basic one—a current sectional chart.

*Before my flight, I checked NOTAMS which indicated a change of identifier, but no frequency change. I took the frequency from a sectional which was expired. I had a new sectional chart with me, but failed to check the frequency. I also checked the airport guide, but it was apparently not up to date. So basically I arrived in Class D airspace with an outdated frequency.*

*I got no response from the Tower, which I did not consider strange, because on my last visit on a weekend evening, the Tower was not occupied. There was no traffic in the air and I proceeded as if in uncontrolled airspace...reporting my position in the pattern, however on the wrong frequency. After I parked, I was summoned to the Tower, where the Controller roasted me.*

Pilots need to review up-to-date publications to confirm frequencies, traffic patterns, and other relevant airport information.

### Plan to Close That Flight Plan

Some pilots who have been out of the flying game for awhile may have lost the habit of closing a flight plan. Two reporters offer stories of unusual circumstances surrounding flight plans left open. First, a general aviation pilot relied on the Tower to close a VFR flight plan, as would be typical for this airport—except when the Tower is closed.

*I was flying a club aircraft out of [a military base] and opened a local VFR flight plan with FSS. The base Tower normally closes flight plans when the aircraft arrives, but the Tower was closed. When Tower is closed, I normally close with FSS via radio while still airborne, but low visibility distracted my attention. First time in over 35 years of flying that I forgot to close my flight plan!*

*The good news: the aircraft was airborne again [with the next renter-pilot] before the FAA would have begun a search. The new pilot was opening his flight plan with FSS before FSS would be calling to look for an overdue aircraft.*

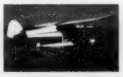
Several years ago, *CALLBACK* published letters from a number of readers who offered memory-joggers for closing flight plans. Suggestions included wearing your watch on the wrong wrist, rolling up one pant leg, leaving notes in your car, attaching a clothes pin to the aircraft ignition key or even your shirt collar, and, of course, adding a line item to the aircraft landing or shutdown checklist.

A flight crew on an IFR flight plan normally can rely on the mere completion of their flight into a Tower-controlled airport to effectively cancel their IFR plan. In our next report, from an air carrier Captain, a bit of a twist was at the heart of the failure to cancel an IFR flight plan:

*Just outside the outer marker, Center gave us a hand-off to Tower. We checked in with Tower...and were advised that the Tower would probably close [for the evening] before we arrived. We reported the outer marker to the Tower and they said that they were closing the Tower.*

*After landing, we were given a report over Tower frequency that braking action was poor on the taxiways. We taxied in and parked, never going back to Center to cancel IFR. Another air carrier's ground personnel canceled for us with Center. Having received the braking action report after touchdown, neither of us thought about canceling the flight plan. Our mindset was "situation normal" for a Tower airport.*

The situation became non-normal the moment the Tower reported closing. That announcement should have given the crew a "heads-up" that they were now responsible for canceling their IFR flight plan.



# 31st Annual Northwest EAA Fly-In

The 31st annual Northwest Experimental Aircraft Association (NWEAA) Fly-In and Sport Aviation Convention is July 5-9. Held at the Arlington Municipal Airport in Arlington, Washington, the Fly-In features a daily air show, workshops, safety forums, and educational seminars. Pilots planning on flying to the NWEAA event need to review the FAA Notice to Airmen (NOTAM) issued for the Fly-In for all of the special operating procedures established for the Fly-In. There are special arrival procedures for July 7 and 8 that all pilots need to be aware of. Pilots can contact their local Flight Service Station for more details, or for those with internet access, they can find complete information including airport arrival procedures with maps and diagrams (Note: the maps are not to be used for navigational purposes) at www.nweaa.org. The web site includes arrival procedures, activity schedules, admission costs, camping and housing information, parking fees and parking information, FAA air traffic procedures and frequencies, daily events, Forum listings, U.S. Customs procedures, and airport and airspace restrictions along with other good to know information. For those without web site access, they can call (360) 435-5857 for more information.

Gates open at 8 a.m. Cost of admission depends upon how you arrive, by plane or car, and if you are an EAA member. There are different rates for daily passes and weekly passes. Children 15 and under get in free. There is a parking fee per day.

Aircraft camping and RV camping sites are available. Fees are charged for the RV camp sites. The internet site provides a complete fee schedule for all activities.

The daily air show starts at 3 p.m. until 5:30 p.m. daily. On Saturday, July 8 there are two air shows. The first starts at 3 p.m. The second Saturday show is an evening show from 9 to 10 pm. The Sunday air show starts at 1 p.m. and ends at 3 p.m. The airport will be closed during the airshow hours.

## TEMPORARY FLIGHT SERVICE STATION

A temporary non-automated Flight Service Station will be available at Arlington Airport from 8 a.m. to 8 p.m. local time Wednesday through Saturday and from 8 a.m. to 5 p.m. on Sunday. Complete pilot briefing and flight planning services are available 24 hours daily through the Seattle Automated Flight Service Station at 1-800-992-7433.

## OPERATIONAL DATA

The Arlington NOTAM details the airport's operating hours and restrictions from July 5-9. No arrivals or departures are permitted during the aero-

batic demonstration periods. According to one of the airport manager's published notices about the Fly-In, no touch and goes or practice IFR approaches are permitted July 5-9.

## U.S. CUSTOMS SERVICES

For guests flying into the Fly-in from Canada, U.S. Customs will be available on the field. Customs, located on the west side of the field will clear arriving foreign aircraft from 8 a.m. to 3 p.m. July 5-8. Customs will close at 1 p.m. on Sunday. All foreign registered aircraft will be directed to Customs. Inbound private/general aviation pilots flying to Arlington direct from Canada during the Customs inspection hours can waive U.S. Customs notification during the hours listed as explained in the NOTAM.

## SPECIAL NOTAM INFORMATION

All pilots flying into the event need to review the NOTAM for special operating instructions for VFR and IFR arriving and departing aircraft. The NOTAM contains information about traffic patterns, glider operations, no radio aircraft procedures, helicopter operations, and ultralight procedures.

Pilots need to read and understand the special flight procedures for July 7 and 8 as noted in the NOTAM. Pilots need to carefully monitor their fuel and advise air traffic immediately if there is a problem. If required, VFR holding may be necessary so pilots should be prepared to hold. "No radio" aircraft will not be authorized on Friday and Saturday from 10 a.m. to 3 p.m. only.

## SAFETY CONSIDERATIONS

As whenever flying to any airport or fly-in where large numbers of aircraft are expected, pilots should be alert for traffic from any direction or altitude. It is recommended that pilots turn on their landing lights within 30 miles of Arlington to help other pilots see and avoid them. Pilots should ensure they have adequate fuel when flying into Arlington in case of an unexpected delay or airport accident that might temporarily close the airport for a period of time. Pilots might also want to practice flying their aircraft at a safe speed below, at, and above their normal cruise speed in case they may have to adjust their own speed for another aircraft's speed. When flying to Arlington, pilots should never compromise their own flight safety by flying at an unsafe speed. If there is any flight safety question about any required maneuver, the pilot should notify air traffic immediately. As explained in the NOTAM, pilots will be controlled and sequenced by aircraft type and color with a minimum of radio communications from the air traffic controllers working Fly-In traffic from sites both on and off the Arlington airport. When contacted by air traffic controllers, pilots are expected to comply with the air traffic directions by rocking their wings rather than using their radio to

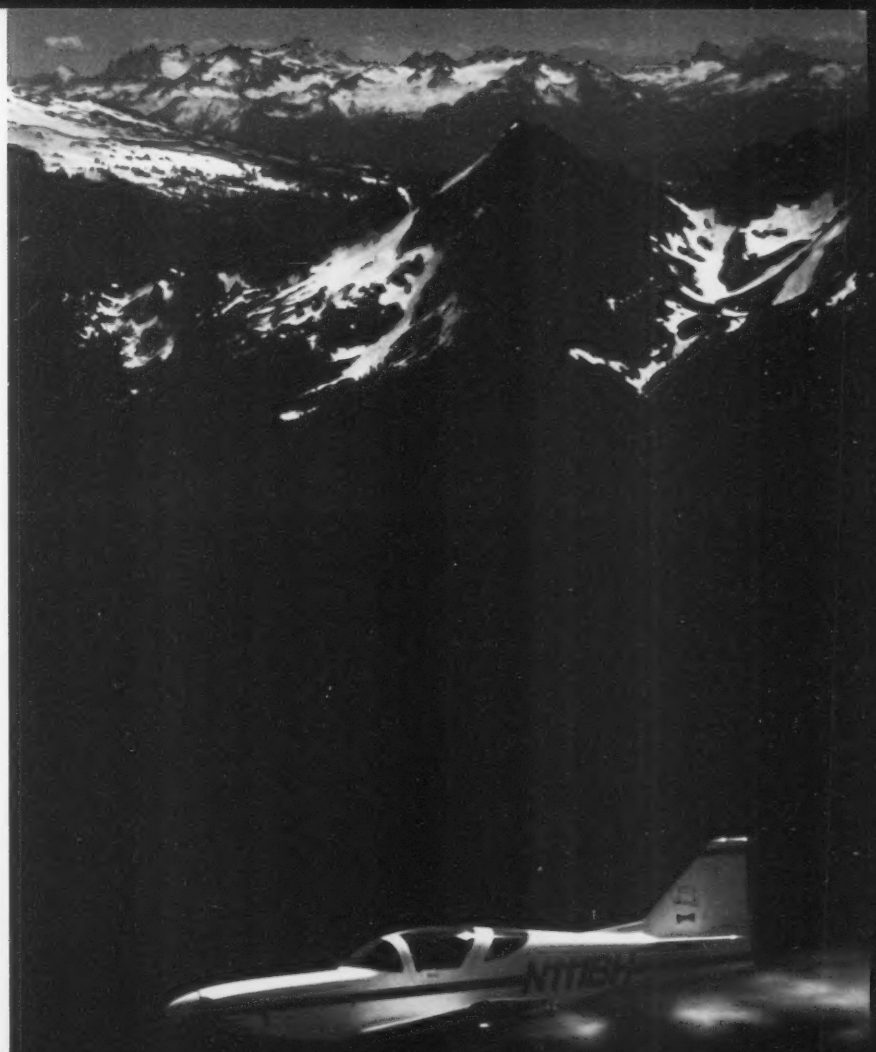
avoid unnecessary radio congestion on the radio frequencies used for the event. The NOTAM contains all of the special procedures information needed to fly into and out of the event including all radio frequencies.

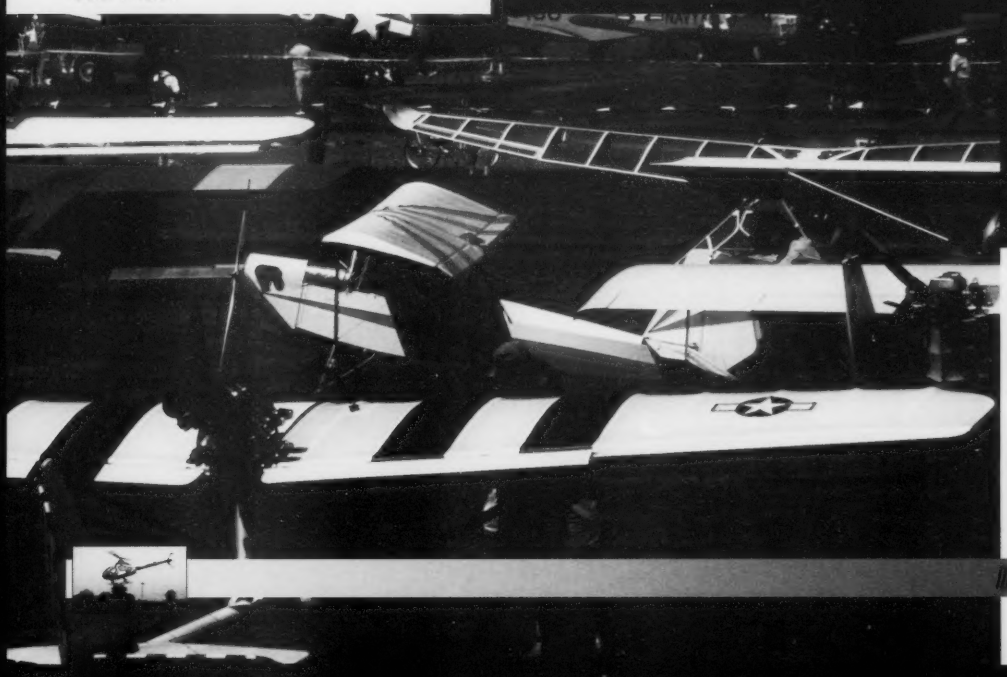
## EMERGENCY FREQUENCY MONITORING

Finally, all pilots should check the aviation emergency frequency of 121.5/243 MHz on their radio periodically for any activated emergency locator transmitters (ELT) transmitting on those frequencies. Pilots should check these frequencies while en route both to and from the Fly-In and before turning off their own aircraft radio after landing at Arlington to help check for any downed aircraft or to monitor the quality of their last landing. If an activated ELT is detected en route to or departing the Fly-In, the pilot should note the time of detection and contact the nearest air traffic control facility for further directions.

## CLOSING YOUR FLIGHT PLAN

All pilots are asked to remember to close their flight plans upon arrival at Arlington at the FSS located on the field or with Arlington Radio on 122.4 MHz or with Seattle Radio on 122.5, 122.55, 123.65 or by calling 1-800-992-7433. ✢





*Photos courtesy of NWEAA*

# FAA WORKS HARD TO SUPPORT THE NWEAA FLY-IN

by Scott Gardiner, Seattle FSDO

I have attended the Fly-In in an official FAA capacity for 22 years. I can remember when it was nothing more than a Saturday fly-in pancake breakfast. Slowly it began to grow and evolve. Good times and tough times, the fly-in continued to grow until the Fly-In is now the third largest in the country.

The Fly-In features six forum tents, and the Seattle Flight Standards District Office (FSDO) has been doing seminars in one of them for about 10 years now. Five seminars a day, all five days of the Fly-In for about 10 years is a lot of FAA forums. The FAA Forum tent is dedicated to FAA sponsored programs.

There are other forum tents with other programs. But the FAA Forum tent hosts speakers from the FAA's Medical Branch, Security Branch, Aircraft Certification Branch (How to certify your homebuilt), the Modifications Branch (How to modify your normally certificated aircraft), Flight Service Station, local tower controllers, local approach controllers, center controllers, and I (the Seattle FSDO's Aviation Safety Program Manager) lecture on pilot things like runway incursions, weather, takeoffs and landings, etc.

We often host presentations by representatives from the National Weather Service, military controllers, Transport Canada, and the British Columbia Aviation Counsel.

Patty Mattison (the Juneau, Alaska FSDO Aviation Safety Program Manager) has flown down from Juneau three times to lecture on flying to Alaska. For the last several years, we have been doing a couple of seminars each year on aviation maintenance. That program has grown and for the 2000 Fly-In, our Maintenance Safety Program Manager, Lou Lerda, will have a forum tent dedicated to maintenance items for all five days of the Fly-In.

The FAA Forum Tent is only one way the FAA supports the Fly-In. From the many air traffic controllers, to the Flight Service Station representatives to the many other FAA employees at the Fly-In, the FAA works hard to provide vital services to the pilots attending the Fly-In as well as working hard to promote safety both on the ground and in the air.

US Army, Golden Knights photo

# FAA Lawyers Go "Above And Beyond" Or Is It "Out And Down?"

by Viola M. Pando

During my 13-year career as an attorney with the FAA, one of the greatest benefits I have received has been the opportunity to learn as much about my job as I desired--first hand. This opportunity has translated into incredible learning experiences for each type of law I have practiced within the FAA. I am currently working with the FAA's Chief Counsel's Office of Airspace and Air Traffic Law and had been assigned the role of legal advisor to the team responsible for revising and updating the rules applicable to Parachute Operations. These rules can be found in Parts 65, 91, and 105 of Title 14 of the Code of Federal Regulations.

In 1998, the FAA decided to revise Part 105 because it had not been updated for 36 years. During those years the parachute industry has thrived, resulting in the establishment of practices not specifically addressed in part 105, and the advancement of technology in equipment design. Based on the numerous changes, the FAA concluded that a rulemaking to address all these changes was justified.

One change in practices adopted by the parachute industry was that of "group parachute packing." Group packing typically occurred at parachute demonstrations where numerous jumpers participated and would need a quick turn-around on the repacking of their parachutes. To accomplish this, a practice developed through the years where several uncertificated individuals (referred to as "mules") would repack the parachutes under the supervision of a certificated parachute rigger. This practice was not specifically addressed under part 105, but neither was it prohibited. Sections 65.125 and 105.43 were impacted by this practice. Section 65.125 describes the privileges associated with holding a parachute rigging certificate, which includes supervision. Section 105.43 allows a certificated rigger or the jumper to pack the main parachute. Similarly, the auxiliary parachute must be packed by a certificated and appropriately rated parachute rigger. Both the main and the auxiliary parachute have specific time frames within which they must be repacked before the date of use. The proposed rulemaking would consider the prudence of allowing this practice to continue.

The proposed rulemaking also addressed technological advancements in parachuting equipment. One such advancement was the development of the dual-harness/dual parachute system, commonly referred to as "tandem

parachutes." Tandem parachutes allow two people to use a single parachute for descending to the ground. Before the proposed rulemaking, part 105 only pertained to single harness/dual parachute system operations. As a result, individuals interested in using tandem parachutes were required to obtain an FAA exemption to conduct the operations on an experimental basis. Under the proposed rule, the FAA was contemplating the adoption of tandem parachute operations, which would make tandem parachute operations legal without the use of an exemption. The proposed revision of Part 105 therefore placed the future of group parachute packing and tandem parachute operations in question. Although several other changes were contemplated, these two changes captured my attention.

Shortly after joining the rulemaking team, I wanted to learn as much about sport parachuting as I could, particularly group parachute packing and tandem parachute operations. I knew this would not be a problem in light of the latitude the FAA would give me to educate myself on the technical issues involved in a rulemaking. I had made a few training parachute jumps about 20 years ago, so I had some familiarity with parachute jumping although my knowledge and experience were dated. When I jumped, the sport parachute industry was still using huge round canopies. Today, parachutists use small rectangular parachutes called ram air parachutes that are highly maneuverable and much faster.

Part 105 posed several questions for me, beginning with the most basic: "How do you pack a parachute?" The relevance of my question went to the issue of whether or not group parachute packing should be allowed. Although the ultimate decision would not rest with me, I felt that I would be better able to argue pros and cons with more information.

Although the FAA has parachute experts—many with thousands of jumps—and its own certificated riggers and engineers who work with the parachute industry almost daily, most of them work outside of our Washington Headquarters. We were able to recruit several field experts as well as one Headquarters certificated rigger. I also want to thank Ed Scott and Glen Banks of the United States Parachute Association (USPA) in nearby Alexandria, Virginia, who upon learning of my interest in parachutes, met with me to explain the sport parachute packing/rigging practices commonly used today. For our meeting, Glen brought his parachute equipment into an FAA conference room where he completely unpacked and then repacked it for my viewing. Then he showed me each part of the parachute and explained its function, sometimes repeating an explanation so that I could better understand how each part contributed to the successful function of another.

By the end of our meeting, I understood the physical differences between the main and emergency parachutes.

*Viola lands safely and on target. (US Army, Golden Knights photo)*

I learned about the drogue (a smaller parachute) released by a tandem instructor to slow the rate of descent of the tandem pair. In the case of a tandem parachute operation, this is the equivalent terminal velocity of one person—120 mph. I also learned how important it was to stow the lines into the parachute container in an orderly fashion, requiring serious attention to detail when repacking a parachute. I learned how important the small pins that held the containers closed were, and how, if they were improperly placed or forgotten, could dramatically impact the parachute's opening sequence. Poignantly, I came to realize how someone could lose their life if a parachute was improperly packed.

My second question concerned tandem parachutes. In this venue, Bob Barton, the Manager of the FAA's Operations and Safety Program Support Branch in Flight Standards Service's General Aviation and Commercial Division, introduced me to Lieutenant Colonel Dave Stahl, the Commander of the "Golden Knights."

The Golden Knights (the nickname of the U.S. Army's Parachute Team) have won numerous parachuting competitions, once holding the world title. One of the Golden Knights' missions, in addition to its more publicized role of supporting the Army's public relations and recruiting efforts by performing live aerial demonstrations for the public, is

*Golden Knights jump from a C-141 Starlifter. (US Army photo by Gary Winkler)*

*UV-20A Pilatus Porter. (US Army photo)*

*Golden Knights' 8-way over Bermuda. (US Army photo by Gary Winkler)*

to test and evaluate new parachuting equipment and techniques for improved operation and safety.

Stahl extended an invitation for me to come to Fort Bragg and learn first hand about tandem parachutes from some of the world's best. That meant I would jump with the Golden Knights! Who would pass up that opportunity? In my mind, there was no better way to learn how tandem parachutes work than to use one myself. After obtaining appropriate authorization from FAA management, my colleague from the International Law Division, Jeff Klang, and I scheduled a trip to Fort Bragg for November 8th.

Upon arrival at Pope Air Force Base (co-located with Fort Bragg), we were met by Sergeant First Class Kevin Mundy, the Knights' Parachute Maintenance Noncommissioned Officer-In-Charge and my tandem master. After signing numerous waivers of liability, Mundy escorted us to the drop zone where he explained the tandem parachute harness system to us. He pointed out how the tandem parachute, although only one, was much larger than the individual parachute. He then explained how the harnesses used by each parachutist were secured together to prevent premature or accidental disengagement. Then Jeff and I went with our respective Army tandem masters, Sergeant Marc Hogue, the Knights' Tandem Program Manager, and Mundy who prepared us for our upcoming jumps.

Mundy was great; he was patient with me and carefully walked me through the jump procedures and the positions I would take in the plane and exiting the aircraft. More than once, Mundy checked the harnesses for proper fit and fastening. He then explained why I was required to take each position, such as tucking my chin in tightly before exit to avoid smacking his head with my own when the wind hit. Count down would be simple; one--two and GO! On signal, we were to push away from the aircraft, turning our left shoulder into the wind. Training completed, we then suited up and boarded the aircraft in sardine fashion with my colleague Jeff, Commander Stahl, our tandem masters, and two camera men.

*The Golden Knights exit an US Army F-27. (US Army photo by K. Kassens)*

The aircraft we used was a UV-20A *Pilatus Porter*, a STOL type aircraft, which has a short take-off and landing roll. When it takes off, it can climb rapidly at a steep angle to altitude. As we climbed to our jump altitude of 13,500 feet above ground level (AGL), I must have tensed up because Mundy started telling me to relax. Of course, I denied that I was feeling any tension at all. My colleague Jeff was the first one to the exit the aircraft. I kind of regretted letting him go first because watching the speed at which he disappeared from sight scared me to death. The door then closed and the aircraft circled around again so that I could exit at approximately the same location as Jeff had.

As the plane circled, I exerted great self control not to betray my racing heartbeat and rising fear. The next thing I knew, the door slammed open, cold wind came rushing in hitting me in the face, and Mundy resolutely instructed me to, "Move to the door." My mind was racing with questions like, "Is it too late to back out of this thing?" I could not believe I had agreed to do this...but I knew I would not back out. We scooted to the door where we stood up and began the routine that Mundy had taught me. My heart was pounding so hard that I almost couldn't hear my own thoughts. I mentally repeated the instructions I received in training, "Cross your arms in front of your chest, tuck your chin in, turn your head to the right, and look down toward your camera man who is holding on to the plane just to the side of you." Somewhere between "look down toward your camera man" and Kevin's command to "GO!" I lost track of time for a split second, as (I would later learn) we executed a flip going out the door.

The next thing I knew the earth was rushing toward me at a blinding speed. For a second, I felt terror at how fast I was dropping and for just a moment I thought, "boy have I messed up this time—something could really go wrong...."

It seemed like I could feel every single mile-per-hour of speed blast past me as I felt the force of the wind press against my body. As I collected myself, I remembered to extend my arms and arch, which seemed to immediately slow our rate of descent slightly. Then I felt Mundy release the drogue, and a moment later the wind seemed to stop blasting past me and everything felt like it had slowed down as we obtained, what I later learned to be, "terminal velocity." We did a couple of spins and I posed for the camera man. Then I felt Mundy tap my head and I remembered this was my signal to fold my arms back across my chest and prepare for opening shock.

Opening shock was just that—a shock. I felt like a rag doll being jerked back into the sky. However, I later learned that this is an illusion because in reality the parachute has simply stopped the fall, causing the sensation of being catapulted back into the sky because you just slammed on the brakes at 120 mph. Once the parachute fully deployed, Mundy checked to see how I was doing and upon confirming that I was still conscious, we floated under canopy to the drop zone where we safely landed.

One of the greatest benefits I have received as an attorney for the FAA has been the ability to learn as much about any aspect of my job as I desired—first hand. I can honestly say that my experience in preparing for the rulemaking on parachute operations has provided me with knowledge that could benefit the parachute enthusiast. I now know the importance of proper supervision over parachute packers. I know the durability, yet concurrent fragility of the fabrics used to make a parachute and harness system and why we establish inspection time frames as we do. Finally, I know how well-constructed the dual harness system is and I now understand the security student parachutists feel knowing that they will not exit that aircraft alone. Most important, however, is that I understand the tandem instruction gives the student parachutist an opportunity to try this sport safely. There is no question in my mind that had I departed that aircraft alone, whether or not I would have had the presence of mind to pull my rip cord—or for that matter cut my main parachute away and then pull the emergency parachute in an actual emergency—is seriously doubtful.

The presence of the expert tandem instructor to get the student through this first experience certainly has the potential to save lives. I can say without equivocation, that because of the efforts made by the U.S. Army's Parachute Team, the "Golden Knights," the United States Parachute Association, Flight Standards Service, and the Office of the Chief Counsel, I have been able to understand parachute operations from another viewpoint—that of the parachutist. I believe this experience will benefit many.

*Left to right: Sargent 1st Class Kevin Mundy, the feature's author Viola Pando, and fellow attorney Jeff Klang. (US Army, Golden Knights photo)*

## *Skydiving--*

# *What to know before you go*

by Ed Scott,
United States Parachute Association

Skydiving, like aviation, is not without risk and should you go, you will sign a hold-harmless agreement stating so. If you decide to try skydiving, there are some steps to take to minimize that risk. Ask if the business is a "USPA Group Member," which means it is affiliated with the U.S. Parachute Association. If so, the business has pledged to meet USPA's Basic Safety Requirements (BSR's).

The BSR's require that all first-jump instruction is conducted by a current USPA rated instructor, and all subsequent jumps are made under the direct supervision of a current USPA rated jumpmaster. Skydiving students must be provided with required equipment that includes: a ram-air (airfoil-shaped) main parachute; a piggy-back container system (both the main and reserve parachutes are worn on the back); an automatic activation device on the reserve parachute; and an altimeter.

Feel free to ask to see your instructor's or jumpmaster's current USPA membership card reflecting his or her rating. Also ask your jump pilot for his or her commercial pilot certificate and current second class medical, and ask for verification that the aircraft has had a recent 100-hour inspection (if piston-engine) or is under a current manufacturer's maintenance program if a turbine.

Finally, don't forget to dress for the day's likely weather, ensuring that you wear sneakers or tennis shoes--sandals, loafers, or heels are definitely out!

For more information about the United States Parachute Association and its safety programs, you can call the organization at 703-836-3495 or visit its website at www.USPA.org.

*Editor's Note: Although the FAA has statutory responsibility and authority for regulating all aspects of civilian parachuting, FAA works very closely with USPA to help ensure the safety of those who participate in parachuting. USPA is one of the recognized leaders in parachuting. FAA also works very closely with the Parachute Industry Association (PIA) which deals more with equipment design and manufacture, while USPA works more closely with drop zone operators and the training and safety issues of skydivers.*

# THE GOL

The "Golden Knights," the United States Army Parachute Team, kicked off their 41st tour season with a jump into the National Football League's Pro Bowl in Honolulu. Special performances featured this year include the Indianapolis 500 on May 28 and "Army Night" with the Chicago White Sox on August 21 at Comiskey Park, Chicago, IL. The Golden Knights will perform at more than 70 events through November.

More than 12 million people annually see the aerial acrobatics and precision landings at various air shows and special events. During events, Golden Knights parachutists, who are stationed at Fort Bragg, NC, fall to the ground at up to 120 mph from high altitudes. They stage maneuvers, such as forming geometric shapes with free-falling parachutists and interlocking parachutists and canopies during descent.

Two Golden Knights teams, the Black and the Gold, perform at shows throughout the world to promote the Army and enhance recruiting efforts. With nearly 8,600 live aerial demonstrations under their belts, the 90 soldiers of the Golden Knights spend up to 230 days a year on the road.

"The Golden Knights take the Army to the backyards of America," said Lt. Col. Dave T. Stahl, commander of the U.S. Army Parachute Team. "They are some of the Army's finest soldiers who embody teamwork and excellence."

Golden Knights' men and women begin their careers as soldiers in a variety of jobs ranging from the infantry and tank driving to military police and communications fields.

The Golden Knights' Formation Skydiving Team, and the Style and Accuracy Team also compete in national and international competitions, usually flying away with top honors. The two teams are the U.S. Nationals champions.

Since 1959, the U.S. Army Parachute Team has performed in all 50 states and nearly 50 different countries. Along with demonstrations and competitions, the Golden Knights test and evaluate new parachuting equipment and techniques to improve skydiving safety and operations.

For more information about the Golden Knights upcoming season, visit the Knight's website at <www.armygoldenknights.com> or contact Golden Knights operations at (910) 396-2036.

# DEN KNIGHTS

## Remaining 2000 Show Schedule

***(All events are subject to change.)***

May 20-21, DoD Joint Services Open House, Andrews AFB, MD.

May 20-21, INDY 500 Time Trials, Indianapolis, IN.

May 27-28, Festival of the Armed Forces Airshow, Randolph AFB, TX

May 27-28, Memorial Day Weekend Salute to Veterans, Columbia, MO.

May 28, Indianapolis 500, Indianapolis, IN.

May 28, Coca Cola 600, Charlotte, NC.

June 3-4, Scott Air Force Base Airshow and Open House, Scott AFB, IL.

June 3-4, Memorial Services, Belfield, ND.

June 10-11, Belmont Stakes, Belmont, NY.

June 10-11, Scouting A New Millennium Expo 2000, Grantsville, UT

June 17-18, McConnell Air Force Base Open House/Airshow, McConnell AFB, KS.

June 17-18, Philadelphia "Sounds of Freedom" Airshow 2000, Willow Grove, PA.

June 24-25, Aviation Expo 2000, Van Nuys, CA.

June 24-25, McChord Air Force Base Open House, McChord AFB, WA.

June 29, Mountain Fest, Fort Drum, NY.

July 1, Army Days, Clayton, NY.

July 1-2, Moffet Airshow 2000, Moffet, CA.

July 8-9, Cape Giradeau Airshow and Open House, Cape Giradeau, MO.

July 8-9, Armed Forces Week, New York, NY.

July 15-16, Quad City Airshow, Davenport, IA.

July 22, Bassmaster Classic, Chicago, IL.

July 22-23, Selfridge Airshow 2000, Selfridge, MI.

July 22-23, 2000 Dayton Daily News US Air/Trade Show, Dayton, OH.

July 22-23, Triumphe of St Cyr Military Academy, Coetquidan, France

July 29-30, Big Sky International Airshow, Billings, MT.

July, 29-30, Armed Forces Open House and Airshow 2000, Elmendorf AFB, AK

Aug. 4-13, World Freefall Convention, Quincy, IL.

Aug. 5-6, Community Appreciation Weekend 2000, Mountain Home, ID.

Aug. 5-6, North Bay Heritage Festival and Airshow, North Bay, Ontario, Canada

Aug. 12-13, Great New England Airshow, Westover, MA.

Aug. 12-13, Muster 2000-Community and Military Celebration, Champlain Valley, VT.

Aug. 12-13, Naval Air Station Atsugi Open House and Airshow, NAS Atsugi, Japan

Aug. 19-20, The Prairie Airshow, Bloomington, IL.

Aug. 21, Army Night with the Chicago White Sox, Chicago, IL.

Aug. 23, Salute to Red, White & Blue, Saratoga , NY.

Aug. 26-27, Rochester International Airshow, NY.

Aug. 26-27, Offut Air Force Base Open House and Airshow, Offut, NE.

Sept. 2-3, Cleveland National Airshow, Cleveland, OH.

Sept. 9, Peterson Air Force Base Show, Colorado Springs, CO.

Sept. 9-10, Tennessee Aviation Days, Smyrna, TN.

Sept. 10, Kirkland Air Force Base Open House 2000, Kirkland, NM.

Sept. 16-17, 2000 Jacksonville Air and Sea Spectacle, Jacksonville, FL.

Sept. 17, Motorola 300 CART FedEx Series, St. Louis, MO.

Sept. 23-24, Neptune Festival Airshow at Naval Air Station, Oceana, VA.

Sept. 23-24, Wings of Eagles Airshow, Elmira, NY.

Sept. 23-24, TRADOC Tattoo, Fort Monroe, VA.

Sept. 30-Oct. 1, Airshow 2000, Liberal, KS.

Oct. 7-8, International Airshow 2000, Fort Worth, TX.

Oct. 14-15, Amigo Airshow, Inc., El Paso, TX.

Oct. 14-15, 2000 Marine Corps Air Station Miramar Airshow, San Diego, CA.

Oct. 21-22, Langley AFB Open House, Langley AFB, VA.

Oct. 21-22, Moody Community Appreciation Day, Moody AFB, GA.

Oct. 28-29, 2000 Naval Air Station New Orleans Airshow, New Orleans, LA.

Oct. 28-29, Thunderbirds Over Long Island, Kings Park, NY.

Nov. 4-5, Keesler Air Force Base Airshow, Biloxi, MS.

Nov. 11-12, Celebrate Freedom 2000 Festival, Columbia, SC.

Nov. 17-19, Black and Gold Parachute Competition, Raeford, NC.

# Charles Taylor Award, Pennsylvania Style

by Howard E. "Bud" Gunter

*Harrisburg FSDO's first Charles E. Taylor Master Mechanic Awardee, Charles Zito (left) and Safety Program Manager Howard Gunter with the Harrisburg plaque.*

When you hear that someone has been awarded the "Charles E. Taylor Master Mechanic Award," there are usually two questions. Who is Charles E. Taylor and what is a master mechanic? The answers are: Taylor was the Wright brother's mechanic, who built the engine for their airplane, and the Charles E. Taylor Master Mechanic Award was developed to honor mechanics who have been active in the aviation maintenance field for 50 years or more. This article tells how one FSDO is honoring master mechanics in their area.

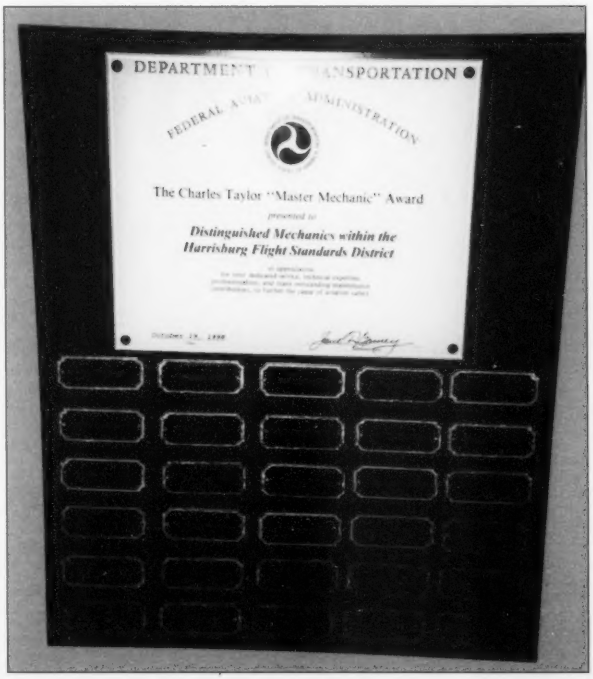
On September 30, 1993, the Harrisburg (PA) Flight Standards District Office (FSDO) honored Charles Zito with its first Charles E. Taylor Master Mechanic Award. Since that time, 16 more awards have been presented to these "Master" mechanics in the Harrisburg area. It was during routine visits and talking to these mechanics that I mentioned that their names were placed on a leather bound book at the FAA Headquarters in Washington, DC. I then asked them if they had ever been there to see the book? They all replied "No, it was too far to travel at their age." (Remember, these mechanics have 50+ years of aviation maintenance experience.) I got to thinking that it was a shame that they would never get the chance to see their name on the headquarters' book.

It wasn't until the summer of 1997, while on my way to Lock Haven, PA, that I thought of how nice it would be if our office had its own plaque with all the names of our FSDO's awardees. These mechanics come to the office from time to time for business or just to visit, so they would be able to see it. I thought about it on and off—up until the funeral of one of our master mechanics. That is when I mentioned to my supervisor, Daniel Moyer, about obtaining a plaque. He thought it was an excellent idea and worked with me to get our own FSDO plaque to recognize and honor the Charles Taylor Master Mechanic Award winners. This 18" by 13" plaque now hangs in the lobby of FSDO-13 and, as other mechanics receive the award, their name will be added to the list.

I'm happy to say that most of the master mechanics have been to the office to see the plaque with their name engraved in gold. Some of them have even taken pictures. Such a simple thing as this plaque has made a better working relationship between our office and all of the airframe and powerplant mechanics. They look at the plaque and say, "Someday my name will be on that plaque."

✈

*Howard E. Gunter is an Airworthiness Safety Inspector at the Harrisburg (PA) Flight Standards District Office.*



- **"It All Depends Upon Your Attitude"**

My wife and I had the opportunity to fly out to an FAA tower-controlled field for lunch. It is not a very busy airfield and our arrival was uneventful. We taxied to the transient area, tied down, and went in for lunch.

A short time later we preflighted the plane, listened to the ATIS, and received permission to taxi for take off. The run-up went as planned and I switched to the tower frequency as I moved up to number one at the hold short lines. The controller was just completing a conversation with another aircraft and I waited my turn to talk. My initial call to the Tower was as follows:

"Fox Tower, this is *Skylane* N5830B ready for takeoff, straight out departure requested."

Tower - "*Skylane* 30B straight-out departure approved as requested."

I waited approximately 30 seconds and then requested more information:

"Fox Tower, this is *Skylane* 30B, are we cleared for takeoff?"

Tower - "30B I approved your request for a straight-out departure, you are cleared for takeoff!"

The controller's rude and annoyed toned of voice was completely unnecessary and he was not working to accomplish his main task: "The safe and orderly flow of traffic." As I understand the new efforts to communicate more clearly, if there is any doubt in the controller's mind or the pilot's mind...ask for a clarification.

The controller's initial response that the "straight-out" was going to be okay with him was NOT a clearance by any stretch of the imagination and knowing that there was another plane nearby made me unsure about taking the active runway.

My reason for writing to you is in the hope that word can filter down from the "top" to your people talking to pilots, that when we ask for help or have a question we are not wasting his time nor trying to annoy him during his stint in the "cab." If I had pulled out on the runway and caused an incursion, the tapes of our conversation would not have included the magic "cleared to..." do anything!

Mike Donnelly
Santa Clarita, CA

*As you stated, whenever anyone is in doubt about an expected course of action, it is always better to clarify the situation rather than do the wrong thing. As noted in the* Aeronautical Information Manual *(AIM), Section 4-3-18, Taxiing, subparagraph (b)(1), "Good operating practice dictates that pilots acknowledge all runway crossing, hold short, or takeoff clearances unless there is some misunderstanding, at which time the pilot should query the controller until the clearance is understood."*

*With all of the government and industry emphasis on reducing runway incursions, it is important that pilots and controllers work hard to reduce any misunderstandings. Without knowing all of the details of your flight, we did not try to contact the controller. We are sorry your outing was not more pleasant. We, at least, hope the meal was good.*

- **Determining the Ceiling**

I noted in Change 2 to the *Aeronautical Information Manual* (AIM), the return of "sky partially obscured" as prescribed phraseology for surface-based obscuration in certain METAR's.

As you may recall, a partially obscured sky did not constitute a ceiling under the old weather reporting format. However, the AIM's Pilot/Controller glossary defines ceiling as "...obscuring phenomena reported as broken."

In light of the old phraseology, "Broken clouds below 50 feet," to describe a surfaced-based obscuration, what would be the ceiling in the following:

METAR KPKB 151200Z VRB03KTS 3/4SM BR BKN000 OVC007 06/04 A2990 RMKS BR BKN000

Robert W. Coulter
ATCS, LAWRS observer
Parkersburg, WV

*The answer to your question is the sky is partially obscured with mist obscuring 5/8 to 7/8 of the sky. Seven hundred feet overcast.*

*As noted on the AIM, paragraph 7-1-28, page 7-1-44, subparagraph (e) Obscurations: are reported when the sky is partially obscured by ground-based phenomena by indicating the amount of obscuration as FEW, SCT, BKN followed by three zeros (000). In remarks, the obscuring phenomenon precedes the amount of obscuration and three zeros. The AIM's U.S. definition of ceiling now states, "The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as 'broken,' 'overcast,' or 'obscuration,' and not classified as 'thin,' or 'partial.'"*

- **GPS Used in Place of ADF and/or DME**

We had an FAA safety seminar concerning GPS approaches in Memphis this past Tuesday. The CFII presenter stated that it was not legal to use GPS distance measurement in place of DME. Although I didn't say anything, I strongly believe that is not a correct statement.

Can you shed a little light on this subject? Please cite any formal documents that cover this subject.

Jim Greer
via the Internet

*The answer to your question is in the* Aeronautical Information Manual

*(AIM). The discussion begins in paragraph 1-1-21. Global Positioning System (GPS). Subparagraph C-5 begins the discussion about using GPS in place of ADF and/or DME equipment. The following subparagraphs then go into great detail on when and how an FAA-approved IFR GPS can be used in place of ADF and/or DME equipment.*

- **Parachutes: One Size Doesn't Fit All**

I'm a bit behind, but I just read the article on parachutes in the October "News." Very good. If you ever do a follow on article it might be helpful to explain that for parachute canopies "one size does NOT fit all."

Following a re-pack, my local rigger explained that my personal reserve chute (for aerobatic and glider flying) was only designed for a person with a max weight of 150-160 pounds. Someone heavier is going to come down too fast, or possibly damage the chute when it opens.

What I have noticed, however, is that pilots who use parachutes, or who put their passengers into parachutes, generally have no awareness of weight limitations. Sport jumpers know their equipment; it's the emergency reserve users that lack some basic knowledge.

Might be worth discussing with Mr. Silver to see if he thinks this is a subject that could use some coverage. Perhaps the International Aerobatic Club and Soaring Society publications would also be interested in printing such an article.

*FAA Aviation News* continues to be excellent. You're all doing a great job.

David Miller
Via email

*Consider the issue raised.*

*Readers, do you want a more detailed article on the subject? If so, please let us know.*

- **Southeren Speak**

Phyllis Anne, Phyllis Anne, Phyllis Anne, I'll only be around four more years, count'em four more years. I must speak up and let my feelin's be known. RE: "Into the Night" and "Adding Insult to Injury or How Sometimes You Get Lucky".

Bein' from around Knoxville and graduatin' from a prestigieous Southeren University, I must say sumpthin'!! H. Dean and yourself must be from Maryland, 'cause if you're from Ol' Virginnie you could be in serious jeopardy. I'm refering to "Southeren Speak" in the two aforementioned articles.

#1 "it warn't there", O pa-leeze, twarn't thar is the correct usage. You obviously paid tooo much attention to your college english, I, on the other hand, was never accused of such a thing. My grades prove such.

#2 "You are in a heap of trouble, boy" my, my, my, "yo' in a heap'o trouble boy" is correct with a very short o. This word (boy) cannot even be written correctly, but must be pronunced with a very short o. You're safe on the boy word, but the rest. Well, time will tell.

I've lived out west 10 years and even flown up north, I even spent a good many years in the Union Army, my Southeren is leavin' rapidly, even more than I'd like, but you've gone tooo far. You jus' might lose your status as a "gud 'ol girl". How humiliatin'. I realize and give you much credit; you're writtin' and editin' for publication to a majority of folks, good people all, that jus' don't understand tha ol' ways, an tha ol' talk, Southeren.

'nuf said

Jim Herzfeld
via email

*Ji-im (has to be two syllables), I am actually a Virginian born and bred, but my Southeren has been weeded out somewhat.*

*An' poor 'ol Dean was born in Ohio He is a transplanted Yankee. You have to take pity on him. He ain't even larn'd how to eat grits yet.*

*Thanks, ya'll. Phyllis Anne*

*(P.S., Louise, a native Marylander, wants to remind ya'll that "Merlin" is a Southeren state, 'cus it's below the Mason/Dixon Line.)*

*FAA AVIATION NEWS* welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov

## NTSB RELEASES 1999 AVIATION ACCIDENT STATISTICS

Preliminary statistics released by the National Transportation Safety Board (NTSB) show 1999 was the safest year yet for general aviation. However, statistics also show an increase in scheduled airline and commuter accident rates.

The Safety Board's aviation accident statistics report for 1999 shows 12 persons were killed in airline accidents (aircraft with 10 or more seats). These fatalities included the 11 persons who died in the crash of American Airlines flight 1420 in Little Rock, Arkansas on June 1, and a ground crew worker struck by a rotating propeller in July, coincidentally also in Little Rock. This is an increase from 1998, when no passenger fatalities were reported for scheduled Part 121 aircraft. The 48 accidents involving Part 121 scheduled carriers were a slight increase from 43 in 1998. The accident rate per 100,000 departures also increased from 0.408 to 0.430.

For the second consecutive year, there were no fatal accidents reported for chartered airlines operating under Part 121. The number of accidents fell from seven in 1998 to four in 1999. The accident rate per 100,000 departures decreased from 1.574 to 0.840.

There were 12 fatalities in Part 135 commuter airline service (aircraft having 9 seats or fewer in scheduled service); there were none in 1998. The accident rate per 100,000 departures rose from 1.131 to 2.453.

General aviation (virtually all aircraft except airlines, commuters, air taxis and military/government) accidents fell by one last year, from 1,909 in 1998 to 1,908 in 1999. Fatal accidents decreased in 1999 to 342 compared to 365 in 1998. Although the number of fatal accidents decreased, total fatalities showed a slight increase from 623 to 628. The accident rate per 100,000 flight hours decreased from 7.12 in 1998 to 7.05 in 1999.

For additional details on 1999 aviation accident rates are available on the NTSB website <http://www.ntsb.gov/aviation/Stats.htm>.

## FIVE STRAIGHT YEARS OF GROWTH FOR GA INDUSTRY

On February 9 General Aviation Manufacturers Association's (GAMA President Ed Bolen announced that in 1999, the general aviation industry posted both record billings and a double-digit percent increase in shipments. GAMA Chairman Chuck Suma stated that the increase was due in part to the number of new aircraft models coming to the market. He also discussed the revolution in technology that is taking place at the entry level of general aviation.

According to Bolen, the results of 1999 were of historical significance. "In the entire 54 year period over which we have tracked these statistics, the industry has never before enjoyed five straight years of growth in both industry billings and shipments," Bolen said.

Some of the 1999 statistical highlights are:

- Significant increase in aircraft shipments, up from 2,220 units in 1998 to 2,525 in 1999.
- Piston-engine aircraft shipments increased 13.9 percent to 1,747.
- Turbine-engine aircraft shipments were up 13.4 percent to 778 units in 1999.
- Best safety rate for general aviation since record keeping began back in 1938.
- Student pilot starts are up 14.0 percent from 1996, the year BE A PILOT started, to 1999.

GAMA Chairman Chuck Suma said, "Because the U.S. has always been willing to develop and adopt new aviation technologies, we find ourselves entering the 21st century as the world leader in all aspects of aviation." Suma continued by stating that nowhere is U.S. world leadership more profound than in general aviation. "Nearly ninety percent of all of the general aviation aircraft in the world are manufactured in the United States. Half of all the private pilots in the world live in the United States. We have general aviation airports in the United States that handle more operations per year than London's Heathrow Airport, and there are more general aviation aircraft based in Iowa than in the entire country of New Zealand," Suma said.

## FIREWORKS DON'T FLY, FAA WARNS

Don't make the mistake of packing fireworks in your checked or carry-on bags if you are flying somewhere to celebrate Independence Day.

"Passengers risk substantial fines and up to five years in prison by carrying fireworks in their bags or on their persons," said Cathal Flynn, FAA Associate Administrator for Civil Aviation Security. "Fireworks of all shapes and sizes, from sparklers and poppers to cherry bombs and rockets, are strictly prohibited because of the extreme danger they pose should they ignite during flight."

Both domestic and international regulations prohibit the carriage of fireworks or firework novelty items in passengers' checked or carry-on baggage. The transportation of fireworks is a concern around Independence Day every year since most of the annual sales of these goods take place in June and July.

Violators are subject to civil penalties of up to $27,500 per violation and to criminal prosecution that would carry penalties of $250,000 or more and up to five years in prison.

Certain fireworks may be shipped as cargo on some airlines but only if the shipments are properly packaged, marked and declared under the hazardous material regulations of the Department of Transportation's Research

and Special Program Administration (RSPA). For detailed information, call the RSPA hotline at 1-800-467-4922.

## FAA PUBS AVAILABLE THROUGH GPO

The following FAA publications are available through the U.S. Government Printing Office. The publications can be ordered by mail, phone, fax, or online. The freshly updated editions of several handbooks are also included in the list. All are now made available for sale from the Superintendent of Documents. Prices include regular shipping and handling. Prices and availability are current as of January 2000. Information products may also be purchased at the U.S. Government Bookstores located in: Atlanta, GA; Denver, CO; New York City, NY; Birmingham, AL; Detroit, MI; Philadelphia, PA; Boston, MA; Houston, TX; Pittsburgh, PA; Chicago, IL; Jacksonville, FL; Portland, OR; Cleveland, OH; Kansas City, MO; Pueblo, CO; Columbus, OH; Laurel, MD; San Francisco, CA; Dallas, TX; Los Angeles, CA; Seattle, WA; Milwaukee, WI; and Washington, DC. Readers can check their telephone directories for addresses and phone numbers.

*Commercial Pilot Knowledge Test Guide*, 1999, contains information about eligibility requirements, test descriptions, testing and retesting procedures and sample test questions representative of those used in the official tests for commercial pilot certification. 1999. 27 p. Stock number 050-007-01259-4. $3.00.

*Flight Engineer Knowledge Test Guide*, 1999, contains information about the knowledge test eligibility requirements, test descriptions, testing and retesting procedures and sample test questions with answers. 1999. 23 p. Stock number 050-007-01261-6. $2.50.

*Flight and Ground Instructor Knowledge Test Guide*, 1999, contains information about eligibility requirements, test descriptions, testing and retesting procedures and sample test questions. 1999. 26 p. il. Stock number 050-007-01260-8. $3.00.

*Inspection Authorizations Knowledge Test Guide*, 1999, provides information for obtaining authorization to take the inspection authorization knowledge test. Includes a list of testing designees (CTDs). 1999. 44 p. Stock number 050-007-01268-3. $4.00.

*Instrument Rating Knowledge Test Guide*, 1999, contains information about eligibility requirements, test descriptions, testing and retesting procedures, and sample test questions representative of those used in the official tests. 1999. 27 p. il. Stock number 050-007-01262-4. $3.00.

*Student Pilot Guide*, 1999, provides information on general procedures for obtaining Federal Aviation Administration (FAA) student, recreational, and private pilot certificates. 1999. 31 p. Stock number 050-007-01265-9. $2.00.

These publications may be ordered via phone, fax, mail, or online. To order, phone (202) 512-1800 (M - F, 7:30 am - 5:00 PM EST); fax (202) 512-2250; or send mail to Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. To order on the internet, visit the GPO Online Bookstore at http//www.access.gpo.gov/Supdocs. All orders require prepayment, either by check, VISA, MasterCard, Discover/NOVUS, or GPO Deposit Account.

## CONCORDE IS BACK!

The Experimental Aircraft Association (EAA) has announced that one of the most popular attractions ever at EAA AirVenture Oshkosh—British Airways' supersonic *Concorde* jet—returns this year for the 48th annual event, which will be held July 26-Aug. 1 at Wittman Regional Airport in Oshkosh, WI.

What makes *Concorde*'s return even more exciting is that EAA is again offering AirVenture participants an opportunity to purchase a special ticket for a once-in-a-lifetime ride on the sleek, delta-wing jet during its stay. "Many people have dreamed of flying aboard *Concorde*, but budget reasons may have kept them from enjoying one of the regularly scheduled trans-Atlantic flights, which cost more than $5,000 one-way," said EAA President and AirVenture Chairman Tom Poberezny. "At EAA AirVenture 2000, people can enjoy a flight aboard one of the world's most famous airliners."

The *Concorde* will make four special hour-long (block-to-block) subsonic flights at AirVenture 2000—two each on Saturday, July 29 and Sunday, July 30—which will depart Oshkosh and fly toward Canada before returning. The flights give AirVenture attendees a unique opportunity to enjoy the speed and luxury *Concorde* offers for as little as $750. (A $100 deposit per person is required.) When not in the air, *Concorde* will be on display at AirVenture 2000's AeroShell Square as part of EAA AirVenture, which is celebrating "Speed" as its central theme.

"No tribute to speed in the aviation world would be complete without *Concorde*," Poberezny said. "British Airways' supersonic airplane has been a crowd-pleaser every time it has visited the event. *Concorde*'s dramatic lines and unique place in commercial aviation make it a one-of-a-kind attraction that's rarely seen. We are always happy to welcome it to AirVenture."

For more information on EAA and its programs, call 1-800-JOIN-EAA (1-800-564-6322) or <www.eaa.org>. EAA AirVenture information is also available through the World Wide Web at <www.airventure.org>.

# Editor's Runway

*from the pen of Phyllis-Anne Duncan*

## 24/7

Open 24 hours a day, seven days a week used to be the marketing grab for interstate truck stops. Soon, however, 24/7 grocery, discount department, and convenience stores, pharmacies, and so forth followed. Given that evolution, it was natural that a 24-hour news service would become not only popular, but a necessity to some. When Ted Turner started CNN, media moguls were convinced he was crazy. No one wanted to watch television news in the middle of the night. But we did, and now CNN has been joined by MSNBC and FoxNews as 24-hour, seven-days-a-week news outlets.

That means a lot of space to fill to keep the advertisers happy. That also means that, when there is a breaking news story of potential national interest, there is competition to put the news before the viewers first. Add in local affiliates with the enhanced mobility of cellphones and satellite trucks, and big news stories can take on an air of frenzy. Disasters, both natural and human-made, such as aviation accidents, both suffer and benefit from that frenzy. The suffering comes from endless and sometimes groundless speculation by unenlightened reporters and instant experts. The benefit emerges when information can be transmitted to the public much sooner to allay fears and quell those speculations.

At a recent day-long seminar about media coverage of aviation accidents sponsored by the Aviation Safety Alliance (for information see <www.aviationsafetyalliance.org>), I realized that *FAA Aviation News* is in a somewhat enviable position in that, as FAA employees, we cannot discuss the possible causes of an aviation accident until the NTSB determines probable cause. That's why we're not exactly on the breaking news edge of the media. We can step back and take a deep breath and think clearly without the pressure of an instant deadline pushing us to speculate when we write an article.

Don't get me wrong. Sitting in a room with the cream of aviation reporting made me feel a bit like the country cousin invited to the big city, society wedding—you know, the correct fork question. However—and maybe this is because I don't have a degree in journalism—as the media scions talked about how they had to get the story out, giving people anything because there was air time to fill, I was tempted to say, well, why not just move on to another story if you have nothing new on the old one? Thankfully, I've had some etiquette lessons, and I didn't embarrass myself with the wrong fork—or an ill-timed question.

A great deal of focus on this seminar hinged around accurate information—how to get it and how to disseminate it. Even though the media representatives weren't buying 100% the government line about not speculating (hence the inability to put government employees before the media), it was encouraging, as a government employee, to see that the media was interested in getting their information from experts and not from the latest conspiracy-monger seeking his or her 15 minutes of fame.

The Internet was also touted as a way to get information out quickly. But the very freedom of the Internet can also be fertile ground for the conspiracy theorists. Media members admitted that they had, occasionally, availed themselves of a dubious source on the Internet—but learned their lessons quickly. Again, the difference between the Fourth Estate and the Executive Branch were apparent: FAA and NTSB official Internet sites will post only factual information. It may be slow in coming—slower than many reporters want or need—but it will, at least, not be damaging speculation. NTSB officials indicated, and I have to agree somewhat, that having to deal with the latest "rumor du jour" can actually detract from getting accurate information out. That is a detriment to the investigative process and to public safety.

Conspicuously absent from this seminar were the "problem reporters" and local media. In other words, the people who didn't need to learn about how to cover an aviation accident showed up, and the people who don't know an aileron from a wheel fairing didn't. Local media, in particular, received some criticism from their national media colleagues about being ill-prepared to cover aviation accidents or covering them sensationally. Numerous anecdotes about TWA 800 and the John F. Kennedy, Jr. accident abounded. Everyone agreed that it is getting better, citing the coverage of the Alaska Airlines accident this past January as an example of media restraint.

So, how can airmen help the media do its job better? AOPA's brochure, "Fly a Reporter," details how you can work with your local print and broadcast media to help them become informed about aviation. (For a copy call 1-800-USA-AOPA.) This entails a positive approach and relationship, best offered as an attempt to educate and not criticize, unless the criticism is couched constructively. It can be a worthwhile effort. I've done it not just for local reporters, but for my neighbors as well.

Aviation accidents, rare as they are, must be covered, the information provided to the public. The need for balance is key. Reporting of safety problems—real or speculative—is often not countered with the actual safety record of aviation, meaning that many people are needlessly scared away from flying. Therein lies the real safety issue. As an airline captain recently broadcast as he taxied to the gate at the end of a flight: "The safest part of your journey just ended. Drive home safely."

'Til next time...

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